July 11, 2017

Mr. Edward Weiner
City of Philadelphia, Department of Public Health
Air Management Services
321 University Avenue, 2nd Floor
Philadelphia, PA 19104-4543

Re: Philly Shipyard, Inc. – Revised Plan Approval Application

Dear Mr. Weiner:

On behalf of Philly Shipyard, Inc. (PSI), I have enclosed three copies of a revised Plan Approval Application (PAA) to modify PSI's existing Paint Shop (Source IDs P-29 and P-30) by adding a third paint hall. This is a revision to the PAA that PSI submitted in February 2017. PSI and its representatives discussed the need to submit this revised PAA during a meeting with Philadelphia Air Management Services (AMS) on June 1, 2017.

The PAA fee required by 25 Pa. Code §127.702(d) was submitted to AMS with the original PAA in February 2017. Since this is a revision to that same PAA, no additional fee is included with this revised PAA.

If you have any questions regarding this submittal, please contact Sanjay Deshmuk of PSI at (215) 875-2605 or via email at sanjay.deshmuk@phillyshipyard.com or contact me at (571) 392-2593 or via email at rcheng@all4inc.com.

Thank you,
All4 Inc.

Renee Cheng
Project Manager

Enclosures

cc: Sanjay Deshmuk, PSI
Carl Danley, PSI
Mark Hammond (Land Air Water Legal Solutions LLC)

Plan Approval Application
Paint Shop Modification

Philly Shipyard, Inc. – Philadelphia, PA

Revised: July 2017

Submitted by:

Philly Shipyard, Inc.
2100 Kitty Hawk Avenue
Philadelphia, PA 19112

Submitted to:

Philadelphia Air Management Services
321 University Avenue
2nd Floor
Philadelphia, PA 19104

ALL4 Contact Information: info@all4inc.com | 610.933.5246 | www.all4inc.com

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EXECUTIVE SUMMARY

Philly Shipyard, Inc. (PSI) is submitting this revised Plan Approval Application (PAA) for a proposed project at the PSI facility (Facility) in Philadelphia, Pennsylvania to Philadelphia Air Management Services (AMS). PSI produces oceangoing merchant vessels, historically between 29,000 and 115,000 deadweight tons with lengths of at least 600 feet. The Facility's operations are limited to the construction of "new build" ships; the Facility does not perform repair on existing ships.

The Facility is comprised of the main site where almost all manufacturing takes place (i.e., Main Shipyard) and Building 763 where steel priming occurs as needed. The Main Shipyard and Building 763 have separate emissions limits, but are considered to be part of the same facility for permitting purposes. The Main Shipyard includes coating and abrasive blasting operations that are divided into two key areas in the Facility's Title V Operating Permit (TVOP): 1) the Paint Shop where all indoor coating and abrasive blasting occurs; and 2) the Dry Dock, which includes multiple locations where all outdoor coating and abrasive blasting occurs. The existing Paint Shop consists of two large buildings called "paint halls" and are approximately 28 meters wide, 45 meters long and 22 meters high. Large "blocks" of the ship are blasted and coated in the Paint Shop, and the buildings are sized to accommodate the size of the blocks. The building becomes the coating and blasting enclosure or "booth" for these large blocks of the ship being constructed.

The proposed project will result in an upgrade to the indoor coating capability of the Main Shipyard by expanding the existing Paint Shop through the addition of a third paint hall. As with the two existing paint halls, operations among the three paint halls will be interchangeable and the paint halls will be operated as a single source – the Paint Shop. Adding a third paint hall simply expands the existing capability of the Paint Shop.

The primary intent of the third paint hall is to improve product quality and processing efficiency. The improvements will be realized by the relocation of certain coating operations that are currently performed outdoors in various Dry Dock areas to indoor areas (i.e., Paint Shop). One significant advantage of coating indoors is the reduced risk of contaminants depositing on the coating before

the coating has set, which would require recoating of these areas. The third paint hall will be equipped with similar equipment already operating in the Paint Shop – three dust collectors that will operate when abrasive blasting occurs, and paint filters that will be in use when coating operations occur. Abrasive blasting and coating cannot occur at the same time because of the potential for contaminants collecting on the wet coating. The third paint hall will also be equipped with two small natural gas, direct-fired heaters to heat the paint hall to achieve the necessary temperature for the coatings to dry, as needed.

To accommodate the upgraded coating capability, PSI is seeking an increase in the Main Shipyard's permit limits for volatile organic compound (VOC) emissions and hazardous air pollutant (HAP) emissions. Specifically, PSI is seeking a VOC emissions limit of 174.9 tons per year and a HAP emissions limit of 121.0 tons per year; both limits on a 12-month rolling total basis. PSI is also seeking these higher limits to accommodate its existing production capacity. As discussed by PSI and its representatives during a June 1, 2017 meeting with AMS and its legal counsel, PSI recently discovered that it has exceeded the current VOC and HAP emissions permit limits for the Main Shipyard. As set forth in correspondence to AMS dated June 26, 2017, the exceedance was not previously known due to an error in the operation of the emissions tracking system. The requested emissions increase set forth in this revised application will resolve the issue and ensure compliance in the future.

PSI reviewed the proposed project to determine applicable air permitting requirements under both Federal and Pennsylvania regulations. With regard to Federal New Source Review (NSR) rules, PSI determined that the proposed project does not trigger nonattainment new source review (NNSR) or Prevention of Significant Deterioration (PSD) requirements. The basis for that determination is set forth in detail in this PAA. This PAA also discusses the other Federal and Pennsylvania regulations that apply to the proposed project and how PSI will meet those requirements.

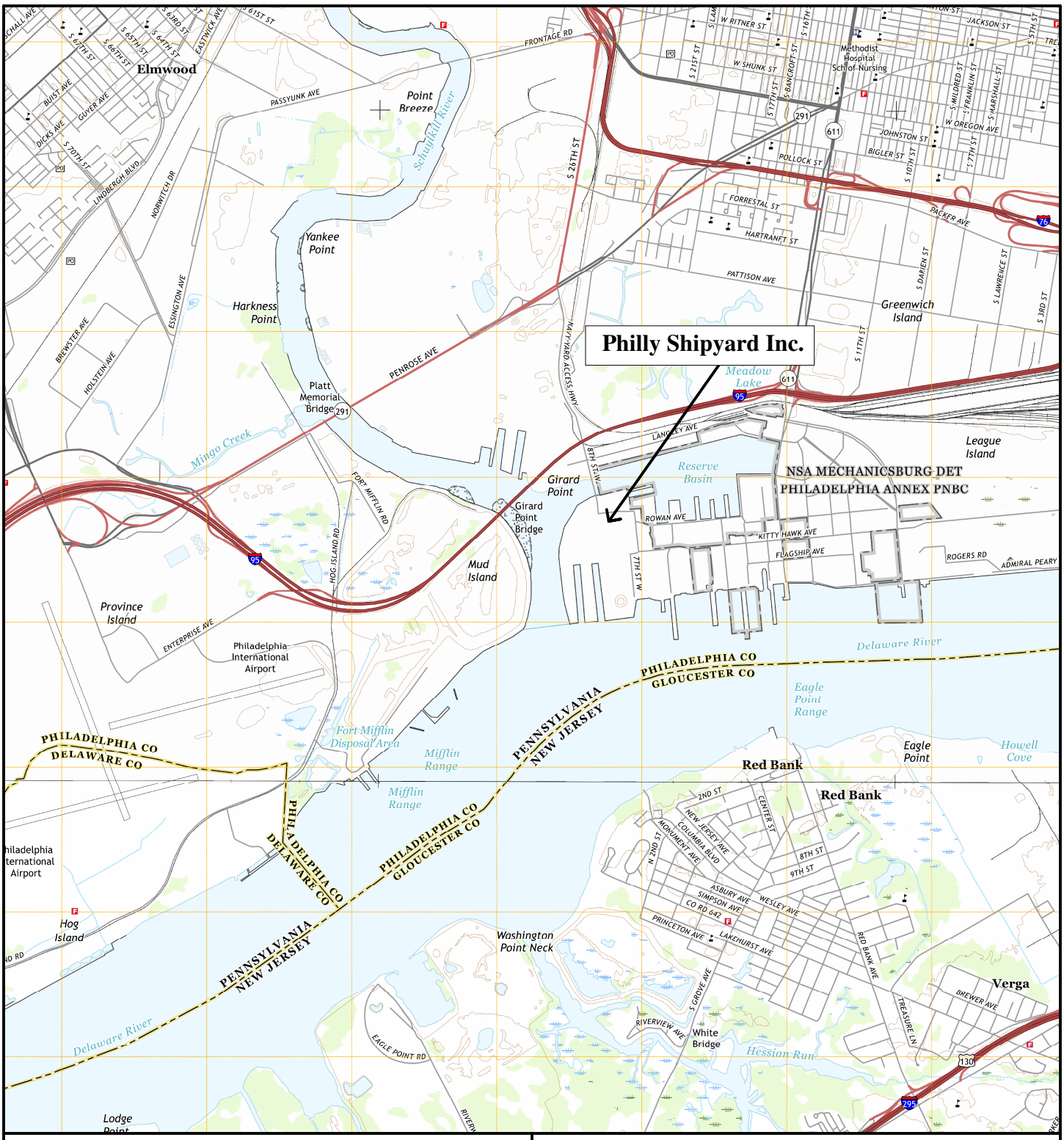
1. INTRODUCTION

PSI, formerly known as Aker Philadelphia Shipyard, Inc., is submitting this revised PAA to AMS for a proposed project at PSI's Facility in Philadelphia, Pennsylvania. The Facility is comprised of the Main Shipyard and Building 763. The Main Shipyard includes the Panel Shop, Fabrication Shop, Grand Block Shop, Paint Shop, and Dock Shop with associated Dry Dock and Building 620. The Facility also includes Building 763, which is considered by AMS to be adjacent to the Main Shipyard. The Facility operates under TVOP No. V07-005 and Plan Approval Nos. 12086 and 14218. TVOP No. V07-005 applies to all of the painting and blasting areas at the Facility. Plan Approval No. 12086 addressed changes to abrasive blasting operations at the Paint Shop (Source ID P-30). Plan Approval No. 14218 addressed changes to the coating operations at the Dry Dock (Source ID P-31). (These two Plan Approvals are in the process of being administratively amended into the Facility's pending TVOP renewal.) Blasting and painting activities presently occur in three areas at the Facility: Building 763, the Paint Shop, and the Dry Dock.

The proposed project will result in an upgrade to the painting capability of the Facility, and generally involves modification of the Main Shipyard's existing Paint Shop through the addition of a third paint hall. The Main Shipyard's Paint Shop is currently identified under two separate Source IDs based on the activities conducted: P-29 (Paint Shop – Painting Operations) and P-30 (Paint Shop – Blasting Operations). The addition of this third paint hall would allow PSI to relocate indoors a certain portion of the coating and blasting that occurs outdoors in the Dry Dock areas. The Dry Dock operations are also identified under two separate Source IDs based on the activities conducted: P-31 (Dry Dock – Painting Operations) and P-32 (Dry Dock – Blasting Operations), both of which occur outdoors. Further discussion of the project can be found in Section 2.

1.1 FACILITY DESCRIPTION

PSI operates a shipbuilding facility located at 2100 Kitty Hawk Avenue in Philadelphia, Pennsylvania. A facility location map is presented in Figure 1-1.



approximate quadrangle location

0 0.5 km 1 km

N

Based on USGS 1:24,000 topographical map for Philadelphia, PA 2016 and Woodbury, NJ 2016.

Philly Shipyard, Inc.
Philadelphia, PA

Figure 1-1
Facility Location Map

PSI produces oceangoing merchant vessels, historically between 29,000 and 115,000 deadweight tons with lengths of at least 600 feet. The Facility's operations are limited to construction of "new build" ships; the Facility does not perform repair on existing ships. The Facility is classified as a major VOC emitting facility as defined in 25 Pa. Code §121.1, and a major source of HAP emissions as defined in Section 112 of the Clean Air Act (CAA). Figure 1-2 illustrates the process flow for the Facility. The Facility is not a major source of any other regulated NSR pollutant. In particular, the Facility is not major for any PSD pollutant and is not proposing an emissions increase that would be considered a major source for any PSD pollutant. Therefore, no detailed PSD permitting applicability analysis was necessary. Further discussion of NSR/PSD applicability can be found in Section 3.

1.2 PROJECT OVERVIEW

PSI is submitting this revised PAA for a proposed modification of the Main Shipyard's Paint Shop (Source IDs P-29 and P-30) through the addition of a third paint hall to be used for coating and blasting. The third paint hall will allow PSI to improve product quality and processing efficiency by moving indoors some of the coating and blasting that currently occur outside at other permitted sources at the Facility. In particular, the installation of the third paint hall requires removal of the current "tented" area of the Main Shipyard's Dry Dock (Source IDs P-31 and P-32); the tented area is near the existing Paint Shop. One significant advantage of coating inside enclosures is the reduced risk of contaminants depositing on the coating before the coating has set, which would require recoating of these areas.

The addition of a third paint hall will also allow for an increase in PSI's production capacity. Because the project will result in a potential increase in production, PSI considered the possible impacts to other existing emissions sources at the Main Shipyard and at Building 763. However, no physical changes will be made to any existing equipment or source as part of this project (other than the removal of the tented area of the Dry Dock). A detailed project description can be found in Section 2.

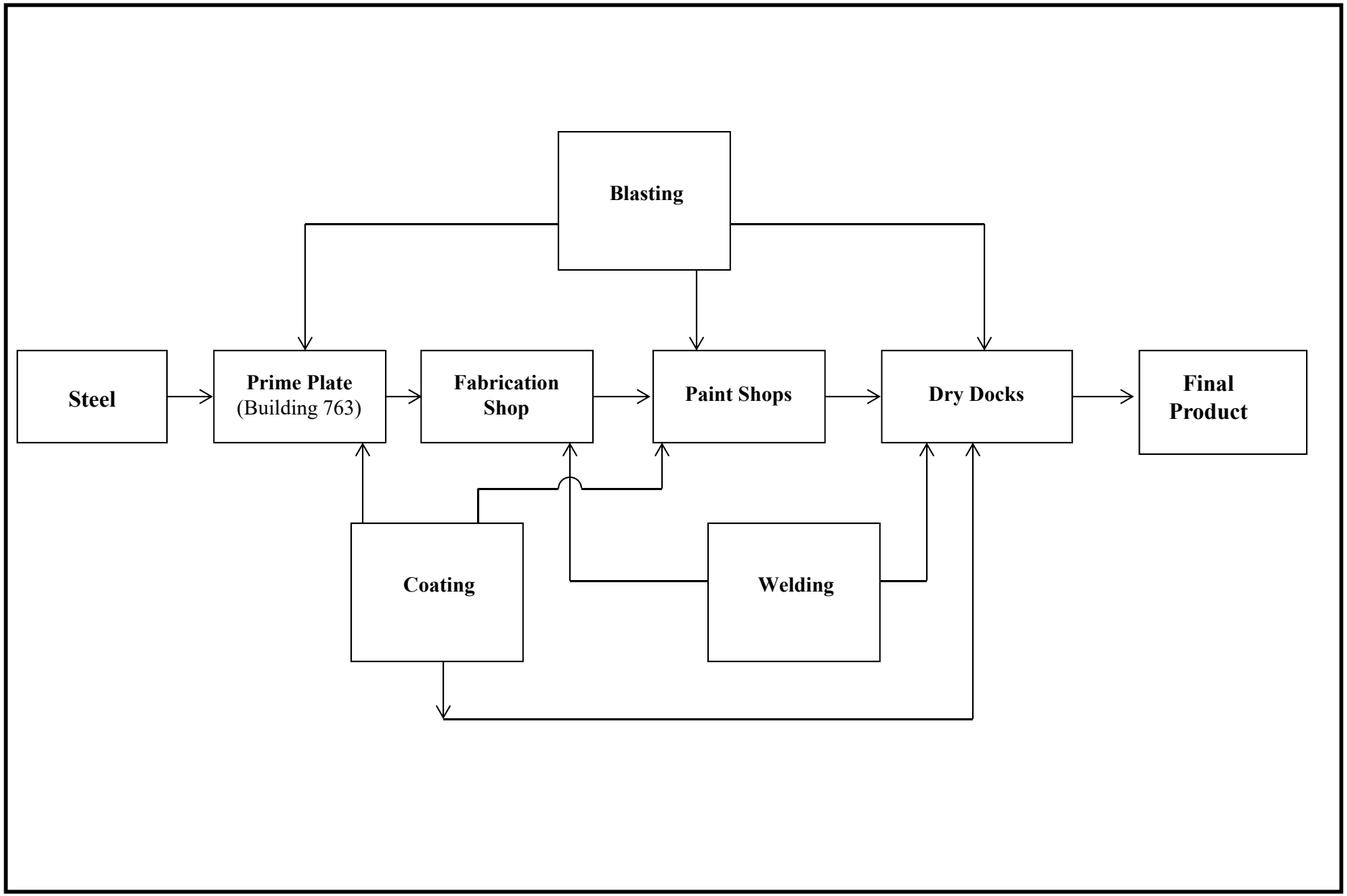


Figure 1-2
Process Flow Diagram
Philly Shipyard, Inc. – Philadelphia, PA

1.3 APPLICATION ORGANIZATION

The remainder of the PAA is organized as follows:

- Section 2 – Project Description: Provides a detailed description of the project.
- Section 3 – Emissions Inventory and New Source Review Applicability: Provides project-related emissions inventory.
- Section 4 – Regulatory Analysis: Provides a summary of potentially applicable Federal and Pennsylvania air quality regulations for the project.
- Section 5 – Proposed Plan Approval Emissions Limits: Provides proposed plan approval conditions.
- Appendix A – Plan Approval Application Forms
- Appendix B – Emissions Inventory Tables
- Appendix C – Control Cost Analysis
- Appendix D – Compliance Review Form

2. PROJECT DESCRIPTION

2.1 EXISTING COATING AND BLASTING OPERATIONS

Coating and abrasive blasting at the Main Shipyard occur at the same physical locations; the TVOP has separate Source IDs for the coating and blasting that occurs at each source (i.e., the Paint Shop and the Dry Dock). Coating at the Main Shipyard occurs at either one of two permitted operations: 1) the Paint Shop (Source ID P-29) which currently consists of two paint halls where all indoor coating occurs; and 2) the Dry Dock (Source ID P-31), which consists of two dry docks and three related areas, where all the outdoor coating occurs. Abrasive blasting occurs at the Paint Shop (Source ID P-30), which consists of the two paint halls in which indoor abrasive blasting occurs and the Dry Dock (Source ID P-32), which includes two dry docks and three related areas at which outdoor abrasive blasting occurs. Coating and abrasive blasting also occur on a much smaller scale at Building 763 and are permitted under Source IDs P-47 and P-48, respectively.

Section D of the TVOP contains two sets of "facility-wide" emissions limits. The first set applies to the combined emissions from all sources at the Main Shipyard. The second set applies to all emissions that occur at Building 763. At the Main Shipyard, VOC and HAP emissions occur almost entirely from the coating operations at the Paint Shop and Dry Dock (i.e., 99+% of the Main Shipyard's VOC and HAP emissions) from the use of coatings and solvent cleaning materials.[1] By having facility-wide VOC and HAP emissions limits for the Main Shipyard, the TVOP recognizes that coating operations at the Paint Shop and Dry Dock are indistinguishable from one another with regard to the processes performed, the coating and solvent cleaning materials utilized, and the emissions rate or profile of VOC and HAP emissions from these areas. In effect, the Paint Shop (Source ID P-29) and Dry Dock (Source ID P-31) are presently permitted as a single emissions unit with regard to VOC and HAP emissions from coating operations.

[1] PSI internally refers to solvent cleaners as "thinners." No thinner, however, is ever added to any coatings at the Facility.

2.2 PROPOSED MODIFICATION TO COATING AND BLASTING OPERATIONS

PSI intends to modify the existing Paint Shop by constructing a third paint hall where coating and abrasive blasting operations will occur. As part of this project, a portion of the coating and abrasive blasting that occurs outdoors under the Dry Dock emissions unit (Source IDs P-31 and P-32) would be able to be performed indoors. In particular, the current "tented" area near the existing Paint Shop will be removed. While there will be some new equipment in the form of coating apparatus and blasting equipment, the coating and blasting operations in the new paint hall will be indistinguishable from the existing operations at the Paint Shop and Dry Dock. The three paint halls will be operated by PSI as a single emissions unit.

The third paint hall will constitute a modification of the existing emissions unit, Source ID P-29 (Paint Shop – Painting Operations), which is part of Group 03 – Painting Operations and Control Devices, and Source ID P-30 (Paint Shop – Blasting Operations), which is part of Group 04 – Blasting Operations and Control Devices. As set forth in this revised PAA, this expansion is a modification of the existing permitted operations. In that context, PSI evaluated all emissions sources at the Facility that could be modified or affected as a result of this air emissions source modification.

The physical dimensions of the third paint hall will be similar to the two existing paint halls that currently comprise the Paint Shop (Source IDs P-29 and P-30). Each of the existing paint halls is approximately 28 meters wide, 45 meters long and 22 meters high. The third paint hall will allow for a theoretical throughput increase of 50% at the Paint Shop (Source IDs P-29 and P-30) since PSI is adding a new paint hall that is comparable in throughput capacity to a single existing paint hall. PSI has conservatively assumed that other affected emissions sources at the Facility will also have higher emissions commensurate with the 50% throughput increase at the Paint Shop. The emissions calculations and associated assumptions are discussed in more detail in Section 3.

Similar to the existing paint halls, the third paint hall will be equipped with three dust collectors that will operate when blasting occurs, and with paint filters that will be in use when coating occurs. (Blasting and coating cannot occur at the same time.) The project also includes adding

two new direct natural gas-fired space heaters for the third paint hall. The heaters are each rated at 3.97 million British thermal units per hour (MMBtu/hr). These units are space heaters that fire by direct heat transfer. As such, the heaters are specifically exempt from the need for a plan approval, as stated in 25 Pa. Code §127.14(a)(5). When this proposed project's plan approval is incorporated into PSI's TVOP, PSI will request that these space heaters be identified under Group IN – Insignificant Activities of Table A-1: Facility Inventory List in the TVOP.

Table 2-1 shows the sources that are impacted by the proposed project.

Table 2-1
New, Modified, and Affected Sources

Source ID	Description	Impact of Project on Source
Insignificant Activity	Fuel Burning Equipment – Two space heaters, 3.97 MMBtu/hr each	New
P-29	Paint Shop – Painting Operations	Modified
P-30	Paint Shop – Blasting Operations	Modified
P-31	Dry Dock – Painting Operations	Modified
P-32	Dry Dock – Blasting Operations	Modified
Group 02	Welding Operations	Affected
Group 03	Paint Operations and Control Devices	Modified
Group 04	Blasting Operations	Modified
Building 763	Paint Booth, Blasting and Combustion	Affected

The third paint hall will be equipped with paint filters, which will become part of existing Source ID CD-PS-9, Paint Shop – Painting Shop Filters in Group 03 of PSI's Facility Inventory List (Table A-1 in PSI's TVOP). Similar to the existing paint halls, the third paint hall will be equipped with an air ventilation system. Paint filters will be positioned within the ventilation system in order to capture coating overspray, in the form of particulate matter (PM) emissions, before discharge to the outdoor atmosphere. PSI will continue to use airless spray guns or an equivalent application method, with a minimum transfer efficiency of 70%, as required in Section D(2)(d)(7)(i) of PSI's TVOP, which represent the Best Available Technology (BAT) for ship coating. In addition, PSI

will continue to comply with the coating operating practices required in Section D(2)(d)(7) of PSI's TVOP. This permit condition reads as follows:

> *(7) The Permittee shall ensure that the following coating operating practices are in effect at all times: [AMS Plan Approval 99038 issued 6/24/99 and AMS Plan Approval No. 00153 issued 12/12/00 originally to Prime Plate Industries and reissued 8/14/2006 to Aker Philadelphia Shipyard]*
>
> > *(i) Airless spray guns or equivalent applications that meet the minimum of 70% transfer efficiency are used for coating process.*
> >
> > *(ii) All handling and transfer of VOC/VOHAP-containing materials to and from containers, tanks, vats, drums, and piping systems is conducted in a manner that minimizes spills. [40 CFR 63.783(b)(1)]*
> >
> > *(iii) All containers, tanks, vats, drums, and piping systems are free of cracks, holes, and other defects and remain closed unless materials are being added to or removed from them. [40 CFR 63.783(b)(2)]*
> >
> > *(iv) Institute a procedure which controls the distribution of VOC containing thinner and solvent within the facility. The provided thinner used in each batch of coatings shall not exceed the established maximum allowable thinner ratio calculated in accordance with 40 CFR 63.785(c)(2).*
> >
> > *(v) Paint line and spray guns must be cleaned in a closed system that is able to recirculate and collect spent solvent during the cleaning process for proper disposal; and*
> >
> > *(vi) Waste paint, spent solvent, solvent contaminated rag or materials, and sludge from gun cleaners must be stored in gasket sealed containers until properly disposed.*

The third paint hall will be equipped with three dust collectors for the control of PM emissions when abrasive blasting operations occur in the paint hall. PSI is proposing to designate these dust collectors as abrasive blasting recovery dust collector #3 and dust collectors #9 & #10 with proposed Source IDs CD-PS-14, CD-PS-15, and CD-PS-16, respectively. These dust collectors will become part of existing Source Group 04 – Blasting Operations and Control Devices. A summary of these dust collectors is provided in Table 2-2.

.

Table 2-2
Proposed Dust Collectors for Third Paint Hall

Proposed Source ID	Proposed Designation	Unit Information
CD-PS-14	Paint Shop Abrasive Blasting Recovery Dust Collector #3	Torit Downflo or equivalent, 300 cubic meters per minute (m^3/min)
CD-PS-15	Paint Shop Dust Collector #9	Torit Downflo or equivalent, 4,000 m^3/min
CD-PS-16	Paint Shop Dust Collector #10	Torit Downflo or equivalent, 4,000 m^3/min

3. EMISSIONS INVENTORY AND NEW SOURCE REVIEW APPLICABILITY

The Federal NSR program is comprised of two distinct permitting programs: PSD and NNSR. For an existing major source, like PSI, a proposed project requires an evaluation under these permitting programs to determine if it is considered a major modification. A major modification is defined under the Federal PSD regulations at 40 CFR §52.21(b)(2) as:

> *"…any physical change in or change in the method of operation of a major stationary source that would result in: a significant emissions increase of a regulated NSR pollutant; and a significant net emissions increase of that pollutant from the major stationary source."*

The Federal and Pennsylvania NNSR rules define major modification similarly. This section presents the steps to determine if a major modification has occurred under PSD or NNSR and the results of those determinations with regard to PSI's proposed project.

Philadelphia County is a nonattainment area for ozone for permitting purposes, with a major source threshold for VOC of 25 tons per year. Philadelphia County is in attainment or not classifiable for all other regulated NSR pollutants.

PSI is a major source for VOC. The Facility is not a major source of any other regulated NSR pollutant. In particular, the Facility is not major for any PSD pollutant and is not proposing an emissions increase that would be considered a major source for any PSD pollutant. Therefore, no detailed PSD permitting applicability analysis was necessary.

3.1 SOURCES ADDRESSED IN NSR APPLICABILITY ANALYSIS

An NSR permitting applicability analysis first involves defining the project that is being permitted. This includes identifying any new emissions unit(s), any modified existing emissions unit(s), and any existing emissions unit(s) that are affected by the project, but are not modified (affected units). New, modified, and affected emissions units are shown in Table 2-1.

For the purposes of this NSR applicability analysis, PSI evaluated the coating operations from the Paint Shops (Source ID P-29) and the coating operations from the Dry Dock (Source ID P-31) as a single aggregated source for several reasons. PSI manages the coating operations under these Source IDs as a single coating operation. The same coatings are used throughout the Main Shipyard and the split of coating done in the Paint Shops and the Dry Dock can vary over time depending on various factors, including but not limited to, the configuration of each ship and the result of finished coating quality and thickness. The TVOP already recognizes these two Source IDs as a single source in that the TVOP contains a single VOC limit that applies to the Main Shipyard, inclusive of the coating operations at the Paint Shops and Dry Dock in aggregate. This single permit emissions limit recognizes the integral nature of these coating operations and provides PSI with necessary operational flexibility to operate all ship coating without restriction within these emissions units. Therefore, PSI has evaluated existing Source IDs P-29 and P-31, including the proposed third paint hall, as a single, modified emissions unit for NSR permitting purposes. This NSR applicability analysis approach is consistent with previous permitting actions.

When using the "actual-to-projected actual" NNSR applicability test, which is described further in Section 3.3, post-project actual emissions must be tracked for up to 10 years. As discussed previously in this application, the only practical manner for tracking such emissions is to treat the Paint Shop with the third paint hall and the Dry Dock as a single source for NSR permitting with a single emissions limit. One of the primary requirements of NSR permitting is the ability to define "projected actual emissions" (PAE) and then track actual annual emissions in a manner that is practically enforceable. Tracking VOC emissions for the Paint Shop and Dry Dock operations in aggregate is the only practical means of accomplishing this NSR requirement.

U.S. Environmental Protection Agency (U.S. EPA) Region 3 has approved the approach of grouping multiple emissions units as a "single source" for the purposes of NSR permitting at other Pennsylvania facilities performing NSR permitting applicability analyses. For example, a manufacturing facility in northeastern Pennsylvania had proposed a project that was going to affect the steam generated by three boilers that had been permitted as three separate emissions units. Because the proposed project was going to introduce steam into a common steam header that all

three boilers shared, the applicant approached both Pennsylvania Department of Environmental Protection (PADEP) and U.S. EPA Region 3 to address the three boilers as a "single emission unit" for NSR permitting. The three boilers shared the same stack and the same fuel supply and were dispatched based on steam demand and unit availability, and not with regard as to which boiler was being used. Additionally, it was not possible to project future actual emissions from a specific boiler as they were used interchangeably. This permitting concept was specifically reviewed and approved by PADEP and U.S. EPA Region 3 prior to submittal of the formal NSR permit application. The grouping of the Paint Shop and Dry Dock coating operations is directly analogous to this NSR permitting applicability analysis.

This concept of combining air emissions sources to be treated as a single source for NSR permitting has also been used in other permits in Pennsylvania. The only additional permit condition that U.S. EPA Region 3 typically requests is a statement that as a "single source," if any one of these emissions units are modified, then they must all be evaluated for NSR permitting applicability as a single source being modified. PSI is not only agreeable to that additional permit condition, but does not see any other way of assessing NSR permitting applicability for the Main Shipyard's coating operations except as a "single source."

3.2 PSD APPLICABILITY EVALUATION

Under the Federal PSD rules (40 CFR §52.21), the major source emissions threshold is the potential-to-emit (PTE) 250 tons per year of a regulated PSD pollutant unless the source category is one of the 28 listed source types included in the rules, in which case the major threshold is the PTE 100 tons per year. The Facility does not fall within one of the 28 listed source categories and is, therefore, subject to the higher PSD applicability thresholds. PSI is not an existing major source of emissions for any attainment pollutant. To trigger PSD, the project, by itself, would have to result in an increase of an attainment pollutant above 250 tons per year. This project does not involve such an increase for any attainment pollutant. Since the Facility is not major for any PSD pollutant, and the emissions increase of attainment pollutants are less than 250 tons per year, no detailed PSD permitting applicability analysis was necessary.

3.3 NNSR APPLICABILITY DETERMINATION AND VOC EMISSIONS LIMIT INCREASE FOR MAIN SHIPYARD

The actual-to-projected actual applicability test defined in 25 Pa. Code §127.203a was used to evaluate VOC emissions from this project. For existing emissions units, this test requires determination of the PAE, calculation of the "baseline actual emissions" (BAE), and calculation of the emissions that "could have been accommodated during the consecutive 24-month period used to establish the baseline actual emissions…" These three figures are used to perform the actual-to-projected actual applicability test.

Tables B-1 in Appendix B shows the rolling 24-month averages for the last five years.[2] PSI then selected the November 2014 through October 2016 as the most representative 24-month baseline period and selected that period as the basis for BAE.

PAE is defined in 25 Pa. Code §127.203a(a)(5):

> *the maximum annual rate, in tons per year, at which an existing emissions unit is projected to emit a regulated NSR pollutant in any one of the 5 years (12-month period) following the date the unit resumes regular operation after the project, or in any one of the 10 years following that date, if the project involves increasing the emissions unit's design capacity or its potential to emit of that regulated NSR pollutant and full utilization of the unit would result in a significant emissions increase or a significant net emissions increase at the major stationary source.*

Further, 25 Pa. Code §127.203a(a)(5) states that in determining PAE the owner or operator should *consider all relevant information, including…historical operational data…the company's expected business activity and the company's highest projections of business activity.* Additionally, the owner or operator shall *exclude, in calculating any increase in emissions that results from the particular project, that portion of the unit's emissions following completion of the*

[2] When determining the baseline period, PSI excluded those months when VOC emissions exceeded the Main Shipyard rolling 12-month permit limits (i.e., November 2016 to the present).

project that existing units could have accommodated during the consecutive 24-month period used to establish the baseline actual emissions.

PSI calculated the project emissions as found in the following tables in Appendix B[3]:

- Table B-2: Projected VOC Emissions from Coating Operations at Main Shipyard.
- Table B-3: Projected PM/PM_{10}/$PM_{2.5}$ Emissions from Coating Operations at Main Shipyard.
- Table B-4: Projected VOC and PM/PM_{10}/$PM_{2.5}$ Emissions from Building 763 Coating Operations.
- Table B-5: Projected PM/PM_{10}/$PM_{2.5}$ Emissions from Blasting Operations (Main Shipyard and Building 763).
- Table B-6: Projected PM/PM_{10}/$PM_{2.5}$ Emissions from Welding Operations (Main Shipyard and Building 763).
- Table B-7: Potential-to-Emit (PTE) from Third Paint Hall Heaters. (The emissions from the small paint hall heaters for the third paint hall were calculated based on PTE since these sources are new.)

Next, PSI calculated the "could have accommodated" (CHA) VOC emissions for the project. For clarity, PSI first demonstrated the summary of BAE emissions in Table B-8 of Appendix B, as the BAE emissions are utilized in the final NSR analysis to determine whether the project results in a significant emissions increase. To determine CHA VOC emissions, which can be found in Table B-9 of Appendix B, PSI annualized the maximum single month of VOC emissions that occurred during the baseline period. Since the CHA emissions were higher than the permitted emissions, the CHA emissions were adjusted downward to the current facility-wide VOC limit of 154.0 tons per year. Building 763 is not shown in Table B-9 because the VOC emissions from Building 763 are not included in the 154.0 tons per year VOC emissions limit for the sources at the Main Facility.

[3] Although an NNSR applicability analysis is only required for VOC, PSI also calculated projected actual emissions of PM/PM_{10}/$PM_{2.5}$ for informational purposes.

Building 763 has a stand-alone VOC limit of 5.0 tons per rolling 12-month period, and PSI is not proposing to change this limit as part of this project.

In Table B-10 of Appendix B, PSI shows the combined PAE and PTE for the Main Shipyard and Building 763. This table shows that the project will not cause PSI to become major for any other NSR pollutant. Therefore, the NNSR applicability is only required for VOC. Table B-10 also shows the basis for **PSI's proposed increase to the current Main Shipyard VOC limit of 154.0 tons per 12-month rolling period to 174.9 tons per 12-month rolling period. PSI proposes to maintain the existing Main Shipyard-wide limits of 89.0 tons per 12-month rolling period for PM_{10}, 0.2 tons per 12-month rolling period for SO_2, 24.5 tons per 12-month rolling period for NO_X, and 11.0 tons per 12-month rolling period for CO.**

Table B-11 of Appendix B shows that the projected VOC emissions increase (PAE-BAE) is 51.84 tons per year. After excluding the CHA emissions of 27.76 tons per year as required by 25 Pa. Code §127.203a(a)(5), Table B-11 shows the total project related emissions increase for the purposes of NNSR applicability is 24.07 tons per year. Therefore, the proposed project does not result in a major modification for VOC because the VOC emissions increase is below the major modification threshold of 25 tons per year.

In accordance with 25 Pa. Code §127.203a(a)(2), Table B-12 of Appendix B demonstrates that the VOC increases and decreases that have occurred within 10 years are "de minimis." Therefore, emission reduction credits (ERCs) are not required for the project.

3.4 HAP EMISSIONS LIMIT INCREASE FOR MAIN SHIPYARD

As part of this project, and as shown in Table B-13 in Appendix B, PSI is requesting an increase in the HAP emissions limit at the Main Shipyard to 121.0 tons per year. The requested increase is due to several factors including, but not limited to, accommodating existing production rates, as well as the potential increased throughput of the Main Facility after the third paint hall is added. In addition, the coatings PSI uses contain VOC, and a portion of the VOC is also a HAP (VOHAP). The original PAA for the Main Shipyard, which was prepared prior to the construction and commencement of operation of the Facility in the 1990's, assumed a ratio of VOHAP-to-VOC that

was not sufficiently conservative. Also, PSI is now subject to the Performance Standard for Protective Coating (PSPC) adopted by the International Maritime Organization (IMO), which is a mandatory standard that applies to dedicated seawater ballast tanks on all types of ships of not less than 500 gross tonnage, double-side skin spaces arranged in bulk carriers of 150 meters or greater in length, and crude oil tanks of oil tankers of not less than 5,000 metric tons. PSI is legally obligated to implement the requirements of the IMO PSPC during new construction. The PSPC is an environmental protection standard that reduces the possibility of catastrophic environmental incidents at sea through, among other things, enhancing corrosion protection. PSPC-compliant coatings typically contain a higher ratio of VOHAP-to-VOC. PSI must use coatings that not only are certified as meeting the PSPC standard, but that also meet VOHAP coating content limits under 40 CFR Part 63, Subpart II – National Emission Standards for Shipbuilding and Ship Repair (Surface Coating), as well as certain more stringent VOHAP limits established as Lowest Achievable Emissions Rate (LAER) for PSI through earlier permitting actions. The end result is that this revised PAA requests a HAP limit that correctly correlates to the VOHAP-to-VOC ratio of the coatings that are (and will be) used at the Main Shipyard.

Table 3-1 provides a summary of the existing emissions limits and the proposed 12-month rolling emissions limits that would apply on a "facility-wide" basis for the Main Shipyard. PSI is requesting changes to only the VOC and HAP emissions limits as described earlier in this Section.

Table 3-1
Existing and Proposed Main Shipyard-Wide Emissions Limits

Pollutant	Existing Emissions Limit [(a)]	Proposed Emissions Limit
	(tons per 12-month rolling period)	
VOC	154.0	174.9
HAP	72.1	121.0
SO_2	0.2	0.2
NO_X	24.5	24.5
PM_{10}	89.0	89.0
CO	11.0	11.0

(a) Existing emissions limits are from TVOP No. V07-005, except for the HAP limit, which is from Plan Approval No. 14218.

4. REGULATORY ANALYSIS

PSI has reviewed the Federal and Commonwealth of Pennsylvania air quality regulations to determine which regulations potentially apply to the proposed project. This section summarizes potentially applicable air quality requirements other than the NSR requirements that have already been addressed in Section 3.

4.1 FEDERAL REGULATIONS

For the purpose of this PAA, potentially applicable Federal regulations include:

- Standards of Performance for New Stationary Sources
- National Emission Standards for Hazardous Air Pollutants (NESHAP)

A discussion of each specific Federal requirement is provided in the following subsections.

4.1.1 Standards of Performance for New Stationary Sources

The U.S. EPA has promulgated standards of performance for new, modified, or reconstructed sources [i.e., New Source Performance Standards (NSPS)] of air pollution at 40 CFR Part 60. This project is not subject to any NSPS codified in 40 CFR Part 60.

4.1.2 National Emission Standards for Hazardous Air Pollutants

U.S. EPA has promulgated NESHAPs at 40 CFR Parts 61 and 63. NESHAPs promulgated prior to the Clean Air Act Amendments (CAAA) of 1990, found in 40 CFR Part 61, apply to specific compounds emitted from specific processes. There are no standards in 40 CFR Part 61 that are applicable to this project.

Pursuant to the CAAA of 1990, process-specific NESHAPs are promulgated in 40 CFR Part 63. NESHAP rules promulgated under 40 CFR Part 63, commonly referred to as Maximum Achievable Control Technology (MACT) standards, apply to source categories that are considered area or major sources of HAP. PSI is a major source of HAP emissions.

4.1.2.1 40 CFR Part 63, Subpart II

PSI is subject to 40 CFR Part 63, Subpart II – National Emission Standards for Shipbuilding and Ship Repair (Surface Coating). PSI does not add thinning solvent to coatings, and therefore, must comply with the requirements of 40 CFR §63.785(c)(1) by complying with the applicable VOHAP limits in Table 2 of Subpart II (see Table 4-1 below). **PSI is already subject to these requirements and will continue to comply with the requirements of this NESHAP**. This project does not change applicability, compliance procedures, or any other applicable requirements of the rule.

PSI's TVOP specifies, for certain coating categories, VOHAP limits that are more stringent than the limits in 40 CFR Part 63, Subpart II. These more stringent limits were established as part of the LAER requirements when the Facility was initially permitted. **PSI will continue to comply with the VOC/VOHAP limits established in Section D(1)(d)(3) of the existing TVOP for each coating category**. The VOC/VOHAP limits are shown in Table 4-1.

Table 4-1
PSI TVOP and NESHAP VOC/VOHAP Limits (grams/liter)

Category	Current TVOP	40 CFR Part 63 Subpart II
General Purpose	340	340
Air Flask	340	340
Antenna	340	530
Antifoulant	400	400
Heat Resistant	420	420
Extreme High Gloss	420	--
High Gloss	340	420
High Temperature	500	500
Inorganic Zinc High Build	340	340
Military Exterior	340	340
Mist	610	610
Navigational Aids	340	550
Nonskid	340	340
Nuclear	420	420
Organic Zinc	340	360
Pretreatment Wash Primer	420	780
Repair and Maint. of Thermoplastics	340	550

Table 4-1
PSI TVOP and NESHAP VOC/VOHAP Limits (grams/liter)

Category	Current TVOP	40 CFR Part 63 Subpart II
Rubber Camouflage	340	340
Sealant for Thermal Aluminum	610	610
Special Marking	420	490
Specialty Interior	340	340
Tack Coat	610	610
Under Sea Weapons Systems	340	340
Weld-Through Precon Primer	650	650

4.2 COMMONWEALTH OF PENNSYLVANIA REGULATIONS

The proposed project is potentially subject to the following Commonwealth of Pennsylvania air quality regulations which are codified in Title 25 – Environmental Protection of the Pennsylvania Code:

- Chapter 122 – National Standards of Performance for New Stationary Sources
- Chapter 123 – Standards for Contaminants
- Chapter 127 – Construction, Modification, Reactivation, and Operation of Sources
- Chapter 129 – Standards for Sources

A discussion of each specific state requirement is provided in the following subsections.

4.2.1 Chapter 122 – National Standards of Performance for New Stationary Sources

The Federal NSPS are adopted in their entirety by reference at 25 Pa. Code §122.3 and are discussed in Section 4.1.1.

4.2.2 Chapter 123 – Standards for Contaminants

The Facility is currently subject to, and will remain subject to, specific sections of 25 Pa. Code §123, as currently listed in the Facility's TVOP. This project does not impact the Facility's applicability to these sections.

4.2.2.1 Fugitive Emissions

PSI will continue to be subject to the fugitive emissions limitations of 25 Pa. Code §123.1 and §123.2, as currently required in Section C of the current TVOP.

4.2.2.2 Particulate Emissions

PSI will continue to be subject to a particulate emissions limit of 0.04 grains per dry standard cubic foot, as required in 25 Pa Code §123.13.

4.2.2.3 Odor Emissions

PSI will continue to be subject to the odor emissions limitations of 25 Pa. Code §123.31, as currently required in Section C of the current TVOP.

4.2.2.4 Visible Emissions Limitations

PSI will continue to be subject to the visible emissions limitations of 25 Pa. Code §123.41, §123.42, and §123.43, as currently required in Section C of the current TVOP.

4.2.3 Chapter 127, Subchapter D – Prevention of Significant Deterioration of Air Quality

Pennsylvania incorporates the Federal PSD regulations by reference at 25 Pa. Code §127.83. Because the Facility is not a major source for any attainment pollutant, and because the project will not result in an emissions increase of more than 250 tons per year for any attainment pollutant when considered alone, the PSD regulations do not apply.

4.2.4 Chapter 127, Subchapter E – Nonattainment New Source Review

25 Pa. Code §127.203(b) contains specific NNSR provisions that apply to five counties in Pennsylvania including Philadelphia County, where the Facility is located. Under 25 Pa. Code §127.203(b), the project, when aggregated with the other increases in net emissions occurring over a consecutive 5 calendar-year period, does not result in a significant emissions increase of a nonattainment pollutant. Therefore, the project is not a major modification under NNSR

permitting. As required in 25 Pa. Code §127.203(b), PSI also aggregated the 10-year contemporaneous emissions increases and decreases of VOC. This aggregation results in a total net "de minimis" emissions increase below the 25 tons per year of VOC significance level, as shown in Table B-12 of Appendix B. Thus, no VOC ERCs are necessary to proceed with this project.

4.2.5 Chapter 127, Subchapter G – Title V Operating Permits

A TVOP is required for facilities that are subject to Title V operating permitting requirements at 25 Pa. Code Chapter 127, Subchapter G. Title V permitting applies to major stationary sources of air pollutants, as defined at 25 Pa. Code §121.1. PSI is a major VOC-emitting and major HAP-emitting Facility; therefore, PSI is required to operate under a TVOP.

4.2.6 Chapter 127, Subchapter I – Plan Approval and Operating Permit Fees

25 Pa. Code §127.702 specifies the fee required to submit a PAA for facilities. Sources subject to NESHAP are required to submit an application fee of $1,700. A check for $1,700 payable to the "City of Philadelphia" was provided to AMS when the original PAA was submitted to AMS in February 2017.

4.2.7 Chapter 129 – Sources of VOCs

PSI is subject to the surface coating limits of 25 Pa. Code §129.52a and TVOP Condition D(1)(d)(2). Specifically, PSI's coatings are air-dried, and are limited to 800 grams of VOC per liter of coating solids, as outlined in Table I of 25 Pa. Code §129.52a for miscellaneous metal parts and products. As shown in Table B-14 of Appendix B, the coatings comply with this limit.

4.2.8 Environmental Justice Public Participation Policy

PADEP's Environmental Justice Public Participation Policy, Document Number 012-0501-002 effective April 24, 2004 (EJ Policy), defines environmental justice as the fair treatment and meaningful involvement of all people with respect to the identification of environmental issues,

and the development, implementation, and enforcement of environmental policies, regulations, and laws. As outlined in the EJ Policy, "Trigger Permits" are for those PADEP-regulated activities that may lead to significant public concern due to potential impacts on human health and the environment. Specifically, a trigger air permit is a permit for a new major source of criteria pollutants, or a major modification at a major facility. PSI is an existing source, and the project is not a major modification. Therefore, this revised PAA does not meet the criteria of a trigger permit[4].

4.2.9 Best Available Technology

25 Pa. Code §127.12(a)(5) requires that: "*the emissions from a new source will be the minimum attainable through the use of the best available technology.*"

4.2.9.1 VOC/VOHAP

PSI has evaluated BAT for VOC/VOHAP emissions from the painting operations by reviewing the following:

- U.S. EPA's Control Technique Guidelines (CTG) for Shipbuilding and Ship Repair Operations,
- U.S. EPA's Reasonably Available Control Technology (RACT) / Best Available Control Technology (BACT) / LAER Clearinghouse (RBLC),
- South Coast Air Quality Management District (SCAQMD) Rule 1106, and
- Current limits in the TVOP, as established as LAER at the time of original permitting of PSI.

After a review of U.S. EPA's RBLC database, it was determined that it would be technically feasible to use a regenerative thermal oxidizer (RTO) to control VOC and HAP emissions from the proposed third paint hall. PSI conducted economic analyses of an RTO for both VOC and

[4] Even if this was a trigger permit under the EJ Policy, please note that there are no residences within a 0.5 mile radius of the Facility's property boundaries. As such, under the EJ Policy, there is no area of concern and the policy would therefore not apply even to an application for a trigger permit.

HAP emissions control. PSI has included the economic analyses for the RTO in Appendix C, following the procedures and guidelines identified in the U.S. EPA Office of Air Quality Planning and Standards (OAQPS) Control Cost Manual (6th Edition). The results of these analyses demonstrate that the use of an RTO is not economically feasible for this project to control VOC or HAP emissions. While installation of an RTO would reduce VOC and HAP emissions, there would be a meaningful increase in the emissions of other air contaminants as a result of the high rate of auxiliary fuel use by an RTO, including 9.3 tons per year of NOx, 5.6 tons per year of CO and 8,000 tons per year of carbon dioxide (CO_2) emissions, which is the primary greenhouse gas.

Table 4-2 below demonstrates that the current VOC/VOHAP limits in the TVOP Section D(1)(d)(3) are equal to, or lower than, the limits established in the Shipbuilding NESHAP, SCAQMD Rule 1106, and U.S. EPA's Shipbuilding CTG. Therefore, continued compliance with the VOC/VOHAP limits specified in Section D(1)(d)(3) of PSI's TVOP constitutes BAT for VOC/VOHAP.

Table 4-2
Comparison of VOC/VOHAP Limits (grams/liter)

Category	Current TVOP	SCAQMD	40 CFR Part 63, Subpart II	Shipbuilding CTG
General Purpose	340	340	340	340
Air Flask	340	--	340	340
Antenna	340	530	530	530
Antifoulant	400	400	400	400
Heat Resistant	420	420	420	420
Extreme High Gloss	420	490	--	--
High Gloss	340	340	420	420
High Temperature	500	500	500	500
Inorganic Zinc High Build	340	650	340	340
Military Exterior	340	NA	340	340
Mist	610	NA	610	610
Navigational Aids	340	340	550	550
Nonskid	340	NA	340	340
Nuclear	420	NA	420	420
Organic Zinc	340	NA	360	360
Pretreatment Wash Primer	420	780	780	780

Table 4-2
Comparison of VOC/VOHAP Limits (grams/liter)

Category	Current TVOP	SCAQMD	40 CFR Part 63, Subpart II	Shipbuilding CTG
Repair and Maint. of Thermoplastics	340	550	550	550
Rubber Camouflage	340	NA	340	340
Sealant for Thermal Aluminum	610	610	610	610
Special Marking	420	490	490	490
Specialty Interior	340	NA	340	340
Tack Coat	610	610	610	610
Under Sea Weapons Systems	340	340	340	340
Weld-Through Precon Primer	650	NA	650	650

All ships currently built at PSI are subject to the PSPC, adopted by the IMO. As part of its on-going operations and proposed modification of the Paint Shop (Source IDs P-29 and P-30), PSI has worked with coating suppliers to ensure availability of coatings with the lowest VOC and VOHAP content that meet the PSPC requirements. By definition, only coatings that are certified to the PSPC standards are "available" under Pennsylvania's BAT requirements.

PSI also evaluated BAT for the Building 763 coating operations since there is a VOC emissions increase shown after evaluating BAE, PAE and CHA emissions from Building 763. Under the current TVOP and Plan Approval No. 14218, PSI is already required to operate a catalytic oxidizer to control the VOC emissions from the painting operations in Building 763. The use of the catalytic oxidizer qualifies as BAT for this type of air emissions unit.

4.2.9.2 Particulate Matter

PSI has evaluated BAT for PM in the coating operations and has determined that the following will constitute BAT:

- Minimize PM overspray emissions through the use of airless spray guns or equivalent coating application equipment (pollution prevention).

- Operate a dry filtration system for coating overspray PM emissions control (capture and control).

PSI has also evaluated BAT for PM in the blasting operations. PSI will install three dust collectors that use high efficiency filters (i.e., > 99% efficiency) to control emissions from the blasting operations. The use of high efficiency filters for the control of PM emissions from blasting represents BAT.

5. PROPOSED PLAN APPROVAL EMISSIONS LIMITS

PSI is proposing the permit language shown in this section for inclusion in the resulting plan approval for this project.

Section D, Source Specific Requirements, Condition No. 1(a)(2)(vi) of TVOP No. V07-005.

Current Language:

Volatile Organic Compounds (VOCs) shall not exceed 154.0 tons per rolling 12-month period.

Proposed Language:

Volatile Organic Compounds (VOCs) shall not exceed 174.9 tons per rolling 12-month period.

Justification:

The basis for this request is to provide a VOC limit that is commensurate with the painting capacity from the proposed modification to the Paint Shop.

Section D, Source Specific Requirements, Condition No. 5(b) of Plan Approval No. 14218

Current Language:

Hazardous Air Pollutants (HAPs) shall not exceed 72.1 tons per rolling 12-month period.

Proposed Language:

Hazardous Air Pollutants (HAPs) shall not exceed 121.0 tons per rolling 12-month period.

Justification:

The primary basis for this request is to provide a HAP limit that is commensurate with the VOHAP-to-VOC ratio in the NESHAP compliant paints.

APPENDIX A – PLAN APPROVAL APPLICATION FORMS

CITY OF PHILADELPHIA
DEPARTMENT OF PUBLIC HEALTH
PUBLIC HEALTH SERVICES
AIR MANAGEMENT SERVICES

Air Management Services
321 University Avenue
Philadelphia PA 19104-4543
Phone: (215) 685-7572
FAX: (215) 685-7593

APPLICATION FOR PLAN APPROVAL TO CONSTRUCT, MODIFY OR REACTIVATE AN AIR CONTAMINATION SOURCE AND/OR AIR CLEANING DEVICE

(Prepare all information completely in print or type in triplicate)

SECTION A - APPLICATION INFORMATION

Location of source (Street Address) 2100 Kitty Hawk Avenue, Philadelphia, PA 19112	Facility Name Philly Shipyard, Inc.	
Owner Philly Shipyard, Inc.		Tax ID No 23-29446098
Mailing Address 2100 Kitty Hawk Avenue, Philadelphia, PA 19112	Telephone No. (215) 875-2600	Fax No. (215) 875-2700
Contact Person Carl Danley	Title HSE Director	
Mailing Address 2100 Kitty Hawk Avenue, Philadelphia, PA 19112	Telephone No. (215) 599-3020	Fax No (215) 875-2700
E-mail Address Carl.Danley@phillyshipyard.com		

SECTION B - DESCRIPTION OF ACTIVITY

Application type ☐ New source ☑ Modification ☐ Replacement ☐ Reactivation ☐ Air cleaning device ☐ Other	SIC Code 3731	Completion Date Upon receipt of Plan Approval
Applicable requirement ☐ NSPS ☑ NESHAP ☐ Case by Case MACT ☐ NSR ☐ PSD	Does Facility submit Compliance Review Form biannually? ☐ Yes ☑ No If No attach Air Pollution Control Act Compliance Review Form with this application.	

Source Description: PSI proposes to modify existing Source IDs P-29 and P-30 to include a third paint hall. In addition, PSI is seeking an increase in its facility-wide hazardous air pollutant (HAP) emissions limit so the HAP limit is commensurate with the volatile organic compound (VOC)-to-HAP ratio for compliant coatings.

SECTION C - PERMIT COORDINATION (ONLY REQUIRED FOR LAND DEVELOPMENT)

Question	YES	NO
1. Will the project involve construction activity that disturbs five or more acres of land?	☐	☑
2. Will the project involve discharge of industrial wastewater or stormwater to a dry swale, surface water, ground water or an existing sanitary sewer system?	☑	☐
3. Will the project involve the construction and operation of industrial waste treatment facility?	☐	☑
4. Is onsite sewage disposal proposed for your project?	☐	☑
5. Will the project involve construction of sewage treatment facilities, sanitary sewer, or sewage pumping station?	☐	☑
6. Is a stormwater collection and discharge system proposed for this project?	☑	☐
7. Will any work associated with this project take place in or near a stream, waterway, or wetland?	☑	☐
8. Does the project involve dredging or construction of any dam, pier, bridge or outfall pipe?	☐	☑
9. Will any solid waste or liquid wastes be generated as a result of the project?	☑	☐
10. Is a State Park located within two miles from your project?	☐	☑

SECTION D - CERTIFICATION

I certify that I have the authority to submit this Permit Application on behalf of the applicant named herein and that the information provided in this application is true and correct to the best of my knowledge and information.

Signature Robert Fitzpatrick Date 4/29/17 Address 2100 Kitty Hawk Avenue, Philadelphia PA 19112

Name & Title Robert Fitzpatrick, Vice President Production Phone (215) 875-2815 Fax (215) 875-2700

SECTION E - OFFICIAL USE ONLY

Application No.	Plant ID	Health District	Census Tract	Fee	Date Received

Approved by	Date	Conformance by	Date

SECTION F 1 - GENERAL SOURCE INFORMATION

1. SOURCE | **2. NORMAL PROCESS OPERATING SCHEDULE**

	A. Type Source (Describe)	B. Manufacturer of Source	C. Model No.	D. Rated Capacity (Specify units)	E. Type of Materials Processed	A. Amount Processed/yr. (Specify units)	B. Average hr/day	C. Total hr/yr	D. % Throughput/Quarter			
									1st	2nd	3rd	4th
1	Paint Shop - Third Paint Hall Coating and Abrasive Blasting Operations	Not Applicable (N/A)	N/A	N/A	Ships and Ship Components	See Appendix B Tables	20	6,860	25	25	25	25
2												
3												
4												
5												

3. ESTIMATED FUEL USAGE (Specify Units) | 4. ANNUAL FUEL USAGE

A. Used in Unit	B. Type Fuel	C. Average Hourly Rate	D. Maximum Hourly Rate	E. Percent Sulfur	F. Percent Ash	G. Heating Value	A. Annual Amounts	B. Average hr/day	C. Total hr/yr	D. % Throughput/Quarter			
										1st	2nd	3rd	4th
N/A	Natural Gas Heater 1*	N/A	3.97 MMBtu	N/A	N/A	1,020 Btu/scf	8,694 MMBtu	6	2,190	25	25	25	25
N/A	Natural Gas Heater 2*	N/A	3.97 MMBtu	N/A	N/A	1,020 Btu/scf	8,694 MMBtu	6	2,190	25	25	25	25

5. IMPORTANT: **Attach on a separate sheet a flow diagram of process giving all (gaseous, liquid, and solid) flow rates . Also list raw materials charged to process equipment and the amounts charged (tons/hour, etc.) at rated capacity (give maximum, minimum and average charges describing fully expected variations in production rates). Indicate (on diagram) all points where contaminants are controlled (location of water sprays, hoods or other pickup points, etc.).**

* Third paint hall will have two natural gas, direct-fired space heaters that are exempt from plan approval requirements under 25 Pa. Code 127.14(a)(5). Data provided here for informational purposes.

SECTION F 1 - GENERAL SOURCE INFORMATION, CONTINUED

6. Describe process equipments in detail.

PSI is proposing to modify the existing Paint Shop by adding a third paint hall. This will allow PSI to curtail certain outdoor abrasive blasting and painting operations and move them indoors instead. The third paint hall will be a large enclosure in which coating and abrasive blasting of large blocks of the ship being constructed will occur.

Similar to the existing paint halls, the third paint hall will be equipped with three dust collectors that will operate when abrasive blasting occurs, and will be equipped with paint filters that will operate when coating operations occur. Abrasive blasting and coating cannot occur at the same time because of the potential for contaminants collecting on the wet coating. The third paint hall will also be equipped with two small natural gas, direct-fired heaters to heat the paint hall to ensure the appropriate temperature for the coatings to dry when needed.

Please refer to Section 2 - Project Description of narrative for additional details.

7. Describe fully the methods used to monitor and record all operating conditions that may affect the emission of air contaminants. Provide detailed information to show that these methods provided are adequate.

PSI will use existing monitoring and recordkeeping procedures to demonstrate compliance with applicable requirements. Current procedures include the following: PSI monitors orders and receipt of coating materials and specifies to suppliers what VOC and VOHAP limits the coatings must meet. PSI records the amount of coating used on a daily basis, as well as the amount of coating that must be scrapped and goes off-site as waste. PSI also records the daily usages of new thinner used.

For the purposes of VOC and HAP emissions, PSI assumes 100% loss of air contaminants from the net coating used (i.e., total coating - waste coating = net coating). PSI will calculate particulate losses in a manner consistent with the calculations for the existing paint halls where PSI takes the coating usage and applies the following factors as needed: coating solids content, transfer efficiency, particle settling efficiency and paint filer control efficiency (for Paint Shop only).

Thinner emissions are based on how much purchased thinners are sent off-site as waste and how much is recycled on site. Please note that PSI internally refers to the cleaning solvents used on site as "thinners"; however, no thinner is ever added to any coatings at PSI. The amount of thinner recycled versus sent off-site as waste is based on PSI records on how much thinner is used in the Dry Dock areas where the thinner is sent off site as waste versus the Paint Shop and related areas where all thinners are recycled. For the thinners that are recycled, PSI assumes 100% loss of air contaminants. For the non-recycled thinner, PSI assumes that 10% of that thinner is emitted while the remaining 90% is sent off site as waste. The estimate of how much non-recycled thinner is emitted versus being sent off site as waste is based on PSI tests of how much thinner is recovered after a cleaning cycle is performed.

PSI updates emissions on a monthly basis and compares the 12-month rolling emissions totals against the permit limits.

8. Describe modifications to process equipments in detail.

As described under Item 6, PSI is proposing to modify the existing Paint Shop to add a third paint hall to accommodate additional indoor coating and abrasive blasting operations. Refer to Section 2 - Project Description of the narrative for additional details.

9. Attach any and all additional information necessary to adequately describe the process equipment and to perform a thorough evaluation of the extent and nature of its emissions.

See Appendix B Tables.

- Provide equipment information on this page if sources do not belong to special categories in F2 to F8, otherwise remove this page from this application.
- If there are more equipment, copy this page and fill in the information as indicated

SECTION F 4 - SURFACE COATER INFORMATION

1. SOURCE

2. OPERATING SCHEDULE

Unit	A. Name of Coater/Spray Booth	B. Manufacturer and Model Number	C. Application Method i.e., Airless Spray	D. Transfer Efficiency %	E. Line Speed (fpm)	F. Type of Unit Coated	G. Capacity Units/hr		A. Avg. hr/day	B. Total hrs/yr	C. Units per/yr	D. % Throughput/Quarter			
							Rated	Normal				1st	2nd	3rd	4th
N/A	Paint Shop	N/A	Airless spray or equiv.	>70%	N/A	Steel	N/A	N/A	Varies	Varies	Varies	25	25	25	25

3. COATING

Coating	A. lbs. of VOC/gal of Coating Minus Water	B. Gal. of Coating (Minus Water) / hr.		C. Gallon of Solids	D. Overall Control Efficiency	E. lbs. of VOC Emitted	F. % Solids by Volume	G. % Organic Solvent By Volume	H. % Water By Volume	I. Gallon of Coating (inc. water) / hr.		J. Solvent Density
		Max.	Normal							Max.	Normal	
See Appendix B Tables												

4. Attach schematic diagram of process. Indicate all emission points, the position of hoods and specify exhaust flow rates. See Figure 1-2

5. Annual amount of each coating to be used. See Appendix B, Table B-15	% Usage/Quarter	1st	2nd	3rd	4th

6. List breakdown of solvent in each coating. See Appendix B, Table B-14

7. Dryer/Cooler

Zone Temperature of			Number and Capacity of Burners	Type of Fuel	Percent Sulfur	Percent Ash	Heating Value	Average Hourly Rate	Annual Amount	Exhaust CFM	
I	II	III								Dryer	Cooler
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

- Use this page for Surface Coater operation, otherwise remove this page from this application.
- If you have more units, copy this page and fill in the information as indicated

SECTION F 4 - SURFACE COATER INFORMATION, CONTINUED

8. Describe process in detail; indicate modifications to process equipment.

The existing Paint Shop will be modified to include a third paint hall. Coating will be applied using airless spray guns or equivalent. Refer to Section 2 - Project Description of narrative.

9. For additions to existing facilities, give total VOC emissions (lbs/day and tons/yr) from all coating operations - existing plus proposed.

See Appendix B, Table B-10.

10. Type and method of disposal of all waste materials generated by this process.

The type and method of disposal of waste generated will not change as a result of this project. Coating waste is collected and sent off-site for disposal. Thinner is either recycled and reused on site or collected and sent off site for disposal. The coating and thinner wastes are sent to a waste broker in accordance with applicable waste regulations who blends them into a fuel for use by a third party.

11. Briefly describe the method of handling the waste from this process and its associated air pollution control equipment.

The method of handling of waste generated will not change as a result of this project. Coating waste and thinner waste are collected in containers that are kept closed when not in use.

12. Attach any other additional information to evaluate the source.

No additional information is attached.

- Use this page for Surface Coater operation, otherwise remove this page from this application.
- If you have more units, copy this page and fill in the information as indicated

SECTION G - FLUE AND AIR CONTAMINANT EMISSION INFORMATION

1. STACK AND EXHAUSTER

Paint Shop Abrasive Blasting Recovery Dust Collector #3

A. Outlet volume of exhaust gases

approx. 10,600 CFM @ 60-80 °F 14 % Moisture

B, Exhauster (attach fan curves)

N/AV in w.g. N/AV HP @ N/AV RPM

C . Stack height above grade (ft) 50

Grade elevation (ft) 10

Distance from discharge to nearest property line(ft) 1,300

D Stack diameter (ft) or Outlet duct area (sq. ft.)

2.5 ft

E Weather Cap

☑ YES ☐ NO

F. Indicate on an attached sheet the location of sampling ports with respect to exhaust fan, breeching, etc. Give all necessary dimensions.

See attached vendor specifications (Attachment 1).

2 POTENTIAL PROCESS EMISSIONS (OUTLET FROM PROCESS, BEFORE ANY CONTROL EQUIPMENT)

A. Particulate loading (lbs/hr or gr/DSCF)	B. Specific gravity of particulate (not bulk density)	C . Attached particle size distribution information
0.5 gr/DSCF	N/AV	N/AV

D. Specify gaseous contaminants and concentration - **N/A**

Contaminant		Concentration		VOC Contaminants		Concentration	
(1)	SO_x	_____ ppm (Vol.)	_____ lbs/hr	(4)	_____	_____ ppm (Vol.)	_____ lbs/hr
(2)	NO_x	_____ ppm (Vol.)	_____ lbs/hr	(5)	_____	_____ ppm (Vol.)	_____ lbs/hr
(3)	CO	_____ ppm (Vol.)	_____ lbs/hr	(6)	_____	_____ ppm (Vol.)	_____ lbs/hr

E. Does process vent through the control device ? ☑ YES ☐ NO

- If YES continue and fill out the appropriate SECTION H - CONTROL EQUIPMENT
- If NO skip to SECTION I - MISCELLANEOUS INFORMATION

F. Can the control equipment be bypassed: (If Yes, explain) ☐ YES ☑ NO

This dust collector only operates during abrasive blasting operations.

3. ATMOSPHERIC EMISSIONS

A. Particulate matter emissions (lbs/hr or gr/DSCF)

0.0025 gr/dscf

B. Gaseous contaminant emissions - **N/A**

Contaminants		Concentration		VOC	Contaminants	Concentration	
(1)	SO_X	_____ ppm (Vol.)	_____ lbs/hr	(4)	_____	_____ ppm (Vol.)	_____ lbs/hr
(2)	NO_X	_____ ppm (Vol.)	_____ lbs/h	(5)	_____	_____ ppm (Vol.)	_____ lbs/hr
(3)	CO	_____ ppm (Vol.)	_____ lbs/h)	(6)	____ _____	_____ ppm (Vol.)	_____ lbs/hr

SECTION G - FLUE AND AIR CONTAMINANT EMISSION INFORMATION

1. STACK AND EXHAUSTER

Paint Shop - Abrasive Blasting Dust Collectors #9 & #10

A. Outlet volume of exhaust gases

approx. 141,300 (each) CFM @ 60-80 °F 14 % Moisture

B, Exhauster (attach fan curves)

N/AV in w.g. N/AV HP @ N/AV RPM

C . Stack height above grade (ft) 23

Grade elevation (ft) 10

Distance from discharge to nearest property line(ft) 1,300

D Stack diameter (ft) or Outlet duct area (sq. ft.)

7.2 ft each

E Weather Cap

☑ YES ☐ NO

F. Indicate on an attached sheet the location of sampling ports with respect to exhaust fan, breeching, etc. Give all necessary dimensions.

See attached vendor specifications (Attachment 2).

2 POTENTIAL PROCESS EMISSIONS (OUTLET FROM PROCESS, BEFORE ANY CONTROL EQUIPMENT)

A. Particulate loading (lbs/hr or gr/DSCF)	B. Specific gravity of particulate (not bulk density)	C . Attached particle size distribution information
0.3 gr/DSCF	N/AV	N/AV

D. Specify gaseous contaminants and concentration - **N/A**

Contaminant		Concentration		VOC Contaminants		Concentration	
(1)	SO_x	_____ ppm (Vol.)	_____ lbs/hr	(4)	_____	_____ ppm (Vol.)	_____ lbs/hr
(2)	NO_x	_____ ppm (Vol.)	_____ lbs/hr	(5)	_____	_____ ppm (Vol.)	_____ lbs/hr
(3)	CO	_____ ppm (Vol.)	_____ lbs/hr	(6)	_____	_____ ppm (Vol.)	_____ lbs/hr

E. Does process vent through the control device ? ☑ YES ☐ NO

- If YES continue and fill out the appropriate SECTION H - CONTROL EQUIPMENT
- If NO skip to SECTION I - MISCELLANEOUS INFORMATION

F. Can the control equipment be bypassed: (If Yes, explain) ☐ YES ☑ NO

These dust collectors only operate during abrasive blasting operations.

3. ATMOSPHERIC EMISSIONS -

A. Particulate matter emissions (lbs/hr or gr/DSCF)

0.0015 gr/dscf (based on a control efficiency of 99.5% or greater, as provided by the vendor)

B. Gaseous contaminant emissions **N/A**

Contaminants		Concentration		VOC	Contaminants	Concentration	
(1)	SO_X	_____ ppm (Vol.)	_____ lbs/hr	(4)	_____	_____ ppm (Vol.)	_____ lbs/hr
(2)	NO_X	_____ ppm (Vol.)	_____ lbs/h	(5)	_____	_____ ppm (Vol.)	_____ lbs/hr
(3)	CO	_____ ppm (Vol.)	_____ lbs/h)	(6)	____ _____	_____ ppm (Vol.)	_____ lbs/hr

SECTION G - FLUE AND AIR CONTAMINANT EMISSION INFORMATION

1. STACK AND EXHAUSTER

Paint Shop Filter

A. Outlet volume of exhaust gases

approx. 137,800 CFM @ 60-80 °F 14 % Moisture

B, Exhauster (attach fan curves)

N/AV in w.g. N/AV HP @ N/AV RPM

C . Stack height above grade (ft) 16.4

Grade elevation (ft) 10

Distance from discharge to nearest property line(ft) 1,300

D Stack diameter (ft) or Outlet duct area (sq. ft.)

7.2 ft

E Weather Cap

☑ YES ☐ NO

F. Indicate on an attached sheet the location of sampling ports with respect to exhaust fan, breeching, etc. Give all necessary dimensions.

N/AV

2 POTENTIAL PROCESS EMISSIONS (OUTLET FROM PROCESS, BEFORE ANY CONTROL EQUIPMENT)

A. Particulate loading (lbs/hr or gr/DSCF)

0.09 gr/dscf

B. Specific gravity of particulate (not bulk density)

N/AV

C . Attached particle size distribution information

N/AV

D. Specify gaseous contaminants and concentration -

Contaminant		Concentration		VOC Contaminants		Concentration	
(1)	SO_x	N/AV ppm (Vol.)	N/AV lbs/hr	(4)	VOC	N/AV ppm (Vol.)	39.93 lbs/hr[a]
(2)	NO_x	N/AV ppm (Vol.)	N/AV lbs/hr	(5)	N/AV	N/AV ppm (Vol.)	N/AV lbs/hr
(3)	CO	N/AV ppm (Vol.)	N/AV lbs/hr	(6)	N/AV	N/AV ppm (Vol.)	N/AV lbs/hr

[a]29.0 lb/hr was calculated assuming 8,760 hours per year for the paint halls.

E. Does process vent through the control device ? ☑ YES ☐ NO

- If YES continue and fill out the appropriate SECTION H - CONTROL EQUIPMENT
- If NO skip to SECTION I - MISCELLANEOUS INFORMATION

F. Can the control equipment be bypassed: (If Yes, explain) ☐ YES ☑ NO

This control only operates during coating operations.

3. ATMOSPHERIC EMISSIONS -

A. Particulate matter emissions (lbs/hr or gr/DSCF)

9.0E-4 gr/dscf (based on a control efficiency of 99%, as provided by the vendor)

B. Gaseous contaminant emissions

Contaminants		Concentration		VOC Contaminants		Concentration	
(1)	SO_X	N/AV ppm (Vol.)	N/AV lbs/hr	(4)	VOC	N/AV ppm (Vol.)	39.93 lbs/hr[a]
(2)	NO_X	N/AV ppm (Vol.)	N/AV lbs/h	(5)	N/AV	N/AV ppm (Vol.)	N/AV lbs/hr
(3)	CO	N/AV ppm (Vol.)	N/AV lbs/h)	(6)	N/AV	N/AV ppm (Vol.)	N/AV lbs/hr

[a]VOC lb/hr calculated based on requested limit of 174.9 tons per year and 8,760 hours per years.

SECTION H - CONTROL EQUIPMENT, CONTINUED

6. FABRIC COLLECTORS (IF APPLICABLE) Paint Shop Abrasive Blasting Recovery Dust Collector #3

A. Manufacturer: Torit

B. Model No. ☐ Pressurized design ☑ Suction design: DFE 4-24 Downflo Evolution or equivalent

C. Air to cloth ratio
Minimum _____
Average 1.8
Maximum _____

D. Type of Fabric
☐ Felted ☑ Woven ☐ Felted Woven
Material Cellulose/Nanofiber
Weight 3.362 oz/sq.yd
Thickness 0.01 in

E. Fabric Permeability (clean) @ ½" w.g. _ P
22.87 CFM/sq. ft.

F. Pressure Drop (Water gage): 0 - 300 mm

G. Volume of gases handled (ACFM): approx. 10,600

H. Inlet gas temperature (°F): 60-80

I. Design inlet volume (ACFM): approx. 10,600

J. Inlet concentration (lbs/hr or gr/DSCF): 0.5 gr/DSCF

K. Outlet concentration (lbs/hr or gr/DSCF): 0.0025 gr/DSCF

L. Overall efficiency (%): 99.5

M. Number of compartments: 1

N. Number of bags per compartment: 24

O. Can each compartment be isolated for repairs and/or bag replacement?
☑ YES ☐ NO

P. Bag dimensions
Length 26 in. Diameter (or width if envelope type bag) 13.74 in.

Q. If multiple walled bags provide detail: N/A

R. Method of bag cleaning
☐ Shaker ☑ Reverse jet (blow ring)
☐ Reverse Compartment pulse ☐ Reverse flow
☐ Reverse bag pulse ☐ Other

S. Cleaning initiated by ☑ Timer ☐ Pressure drop_____ psig
Frequency if timer actuated: 35 sec

T. Shaker cleaning - **N/A**
☐ Manual ☐ One compartment shaken at a time
☐ Mechanical ☐ All compartments shaken at once

U. Reverse flow cleaning air supply - **N/A**
Source_____
CFM _____

V. Others
Flushing pressure (psig) 90 - 100
Jet Pulse Air

W. Are temperature controls provided? (Describe in detail): No

U. Is bag house insulated: No

Y. Maximum temperature bags can withstand (°F): 180

Z. Dew point at maximum Moisture (°F): 70

- Provide control equipment information on this page if it pertains to this application, otherwise remove this page from the application.
- If there are more of the same type of control equipment, copy that page and fill in the information as indicated.
- Control equipment can be found from a manufacturer catalogue or vendors.

SECTION H - CONTROL EQUIPMENT, CONTINUED

12. COSTS

Paint Shop Abrasive Blasting Recovery Dust Collector #3

A. List costs associated with control equipment. (List individual controls separately)

Control Equipment Cost: $22,000

Direct Cost: $45,100 (estimated using U.S. EPA Air Pollution Control Cost Manual (6th edition))

Indirect Cost: $11,600 (estimated using U.S. EPA Air Pollution Control Cost Manual (6th edition))

B. Estimated annual operating costs of control equipment only.

$120,000

13. Describe modifications to control equipment in detail.

PSI intends to expand the existing Paint Shop by constructing a third paint hall (two existing paint halls expanded to three paint halls). The new Paint Shop abrasive blasting recovery dust collector will control particulate emissions when abrasive blasting takes place. Refer to Section 2 - Project Description of narrative for more detail.

14. Describe in detail the method of dust removal from the air cleaning and methods of controlling fugitive emissions from dust removal, handling and disposal.

Accumulated dust on the bags is periodically removed by pulse jet cleaning and collects by gravity into the hopper and is then discharged to the drum, which is covered.

15. Does air cleaning device employ hopper heaters, hopper vibrators or hopper level detectors? If so, describe.

No

16. Attach manufacturer's performance guarantees and/or warranties for each of the major components of the control system (or complete system).

N/AV

17. Attach the maintenance schedule for the control equipment and any part of the process equipment that if in disrepair would increase the air contaminant emissions. Periodic maintenance reports are to be submitted to the Department.

To be determined. PSI will develop a maintenance schedule based on manufacturer recommendations.

18. Attach any and all additional information necessary to thoroughly evaluate the control equipment.

See attached vendor specifications (Attachment 1).

- Provide control equipment information on this page if it pertains to this application, otherwise remove this page from the application.
- If there are more of the same type of control equipment, copy that page and fill in the information as indicated.
- Control equipment can be found from a manufacturer catalogue or vendors.

SECTION H - CONTROL EQUIPMENT, CONTINUED

6. FABRIC COLLECTORS (IF APPLICABLE) Paint Shop - Dust Collectors #9 & #10

A. Manufacturer	B. Model No.	Pressurized design	Suction design
Torit	DFE 5-40/DFE 5-60 Downflo Evolution or equivalent (each)	☐	☑

C. Air to cloth ratio	D. Type of Fabric	E. Fabric Permeability (clean) @ ½" w.g. _ P
Minimum N/AV Average 2.8 Maximum N/AV	☐ Felted ☑ Woven ☐ Felted Woven Material Cellulose/Nanofiber Weight 3.362 oz/sq.yd Thickness 0.01 in	22.87 CFM/sq. ft.

F. Pressure Drop (Water gage)	G. Volume of gases handled (ACFM)	H. Inlet gas temperature (°F)
0 - 300 mm	approx. 141,300 (each)	60-80

I. Design inlet volume (ACFM)	J. Inlet concentration (lbs/hr or gr/DSCF)	K. Outlet concentration (lbs/hr or gr/DSCF)	L. Overall efficiency (%)
approx. 141,300 (each)	0.3 gr/DSCF	0.0015 gr/DSCF	99.5

M. Number of compartments	N. Number of bags per compartment	O. Can each compartment be isolated for repairs and/or bag replacement?
2 per dust collector	100 per dust collector	☑ YES ☐ NO

P. Bag dimensions	Q. If multiple walled bags provide detail
Length 26 in Diameter (or width if envelope type bag) 13.74 in	N/A

R. Method of bag cleaning	S. Cleaning initiated by
☐ Shaker ☑ Reverse jet (blow ring) ☐ Reverse Compartment pulse ☐ Reverse flow ☐ Reverse bag pulse ☐ Other	☑ Timer ☐ Pressure drop_____ psig Frequency if timer actuated 35 sec

T. Shaker cleaning - N/A	U. Reverse flow cleaning air supply - N/A
☐ Manual ☐ One compartment shaken at a time ☐ Mechanical ☐ All compartments shaken at once	Source_____ CFM _____

V. Others	W. Are temperature controls provided? (Describe in detail)
Flushing pressure (psig) 90 - 100 Jet Pulse Air	No

U. Is bag house insulated	Y. Maximum temperature bags can withstand (°F)	Z. Dew point at maximum Moisture (°F)
No	180	70

- Provide control equipment information on this page if it pertains to this application, otherwise remove this page from the application.
- If there are more of the same type of control equipment, copy that page and fill in the information as indicated.
- Control equipment can be found from a manufacturer catalogue or vendors.

SECTION H - CONTROL EQUIPMENT, CONTINUED

12. COSTS

Paint Shop - Dust Collectors #9 & #10

A. List costs associated with control equipment. (List individual controls separately)

Control Equipment Cost: $670,000 per unit

Direct Cost: $1,375,600 per unit (estimated using U.S. EPA Air Pollution Control Cost Manual (6th edition))

Indirect Cost: $355,700 per unit (estimated using U.S. EPA Air Pollution Control Cost Manual (6th edition))

B. Estimated annual operating costs of control equipment only.

$150,000 (Vendor Estimate)

13. Describe modifications to control equipment in detail.

PSI intends to expand the existing Paint Shop by constructing a third paint hall (two existing paint halls expanded to three paint halls). The new Paint Shop abrasive blasting dust collectors will control particulate emissions when abrasive blasting takes place. Refer to Section 2 - Project Description of narrative for more detail.

14. Describe in detail the method of dust removal from the air cleaning and methods of controlling fugitive emissions from dust removal, handling and disposal.

Accumulated dust on the bags is periodically removed by pulse jet cleaning and collects by gravity into the hopper and is then discharged to the drum, which is covered.

15. Does air cleaning device employ hopper heaters, hopper vibrators or hopper level detectors? If so, describe.

No

16. Attach manufacturer's performance guarantees and/or warranties for each of the major components of the control system (or complete system).

See attached vendor specifications (Attachment 3).

17. Attach the maintenance schedule for the control equipment and any part of the process equipment that if in disrepair would increase the air contaminant emissions. Periodic maintenance reports are to be submitted to the Department.

To be determined. PSI will develop a maintenance schedule based on manufacturer recommendations.

18. Attach any and all additional information necessary to thoroughly evaluate the control equipment.

See attached vendor specifications (Attachment 2).

- Provide control equipment information on this page if it pertains to this application, otherwise remove this page from the application.
- If there are more of the same type of control equipment, copy that page and fill in the information as indicated.
- Control equipment can be found from a manufacturer catalogue or vendors.

SECTION H - CONTROL EQUIPMENT, CONTINUED

10. ABSORPTION EQUIPMENT (IF APPLICABLE) **- N/A**

A. Manufacturer	B. Type	C. Model No.

D. Volume of gases handled (ACFM)	E. Design inlet volume (ACFM)	F. Inlet temperature (°F)	G. Configuration
			☐ Counter-current ☐ Cross flow ☐ Cocurrent flow

H. Pressure drop (water gage)	I. Absorbent type and concentration	J. Retention time (sec)

K. Inlet concentration	L. Outlet concentration	M. Overall efficiency (%)

N. Describe pH and/or other monitoring and controls

O. Type packing and size (if applicable)	P. Height of packing (ft)	Q. Number of trays	R. Diameter of tower (ft)

S. Attach equilibrium data for absorber (If applicable)

11. OTHER CONTROL EQUIPMENT (IF APPLICABLE) Paint Shop Filter

A. Manufacturer	B. Type	C. Model No.
Tenkay or equivalent	Air Pre Filter (Roll Type)	HemiPleat or equivalent

D. Volume of gases handled (ACFM)	E. Design inlet temperature (ACFM)	F. Inlet temperature (°F)
approx. 137,800	approx. 137,800	60-80

G. Inlet concentration (lbs/hr or gr/DSCF)	H. Outlet concentration (lbs/hr or gr/DSCF)	I. Overall efficiency (%)
0.09 gr/dscf	9.0E-4 gr/dscf	99%

J. Attach particle size efficiency curve or other efficiency information.

N/AV

K. Describe fully,giving important parameters and method of operation.

The paint filter is a square, polyester air pre-filter designed to capture paint solids overspray. It will operate within the paint hall ventilation system during coating operations.

- Provide control equipment information on this page if it pertains to this application, otherwise remove this page from the application.
- If there are more of the same type of control equipment, copy that page and fill in the information as indicated.
- Control equipment can be found from a manufacturer catalogue or vendors.

SECTION H - CONTROL EQUIPMENT, CONTINUED

12. COSTS

Paint Shop Filter

A. List costs associated with control equipment. (List individual controls separately)

Control Equipment Cost: $91,000

Direct Cost: N/AV

Indirect Cost: N/AV

B. Estimated annual operating costs of control equipment only.

$125,000

13. Describe modifications to control equipment in detail.

PSI intends to expand the existing Paint Shop by constructing a third paint hall (two existing paint halls expanded to three paint halls). The paint filter contained in these forms will be utilized in the ventilation system of the third paint hall.

14. Describe in detail the method of dust removal from the air cleaning and methods of controlling fugitive emissions from dust removal, handling and disposal.

Paint overspray is collected in the ventilation system and controlled using the paint filter. The filter will be changed in accordance with manufacturer's specifications and disposed of in accordance with federal, state and local regulations.

15. Does air cleaning device employ hopper heaters, hopper vibrators or hopper level detectors? If so, describe.

N/A

16. Attach manufacturer's performance guarantees and/or warranties for each of the major components of the control system (or complete system).

See attached vendor specifications (Attachment 3).

17. Attach the maintenance schedule for the control equipment and any part of the process equipment that if in disrepair would increase the air contaminant emissions. Periodic maintenance reports are to be submitted to the Department.

To be determined. PSI will develop a maintenance schedule based on manufacturer recommendations.

18. Attach any and all additional information necessary to thoroughly evaluate the control equipment.

See attached vendor specifications (Attachment 3).

- Provide control equipment information on this page if it pertains to this application, otherwise remove this page from the application.
- If there are more of the same type of control equipment, copy that page and fill in the information as indicated.
- Control equipment can be found from a manufacturer catalogue or vendors.

SECTION I - MISCELLANEOUS INFORMATION

1. Specify monitoring and recording devices will be used for monitoring and recording of the emission of air contaminants. Provide detailed information to show that the facilities provided are adequate. Include cost and maintenance information.

☐ Opacity monitoring system	☐ SOx monitoring system	☐ NOx monitoring system
☐ CO monitoring system	☐ CO_2 monitoring system	☐ Oxygen monitoring system
☐ HCL monitoring system	☐ TRS monitoring system	☐ H_2S monitoring system
☐ Temperature monitoring system	☐ Stack flow monitoring system	☑ Other Pressure Drop

If checked, provide manufacturer's name, model no. and pertinent technical specifications.

To be determined

2. Attach Air Pollution Episode Strategy (if applicable)

The Permittee shall reduce its emissions according to the approved curtailment plan, when the Philadelphia Health Commissioner or his designee declares an air pollution episode.

3. If the source is subject to 25 Pa. Code Subchapter E, New Source Review requirements,

a. Demonstrate the availability of emission offset (if applicable)

Emissions offsets are not required - refer to Section 3 of the narrative.

b. Provide an analysis of alternate sites, sizes, production processes and environmental control techniques demonstrating that the benefits of the proposed source outweigh the environmental and social costs.

Not applicable

4. Attach calculations and any additional information necessary to thoroughly evaluate compliance with all the applicable requirements of Article III of the rules and regulations of Philadelphia Air Management, Pennsylvania Department of Environmental Protection and those requirements promulgated by the Administrator of the United States Environmental Protection Agency pursuant to the provisions of the Clean Air Act.

See Appendix B - Emissions Inventory Tables.

5. List all attachments included in this Application.

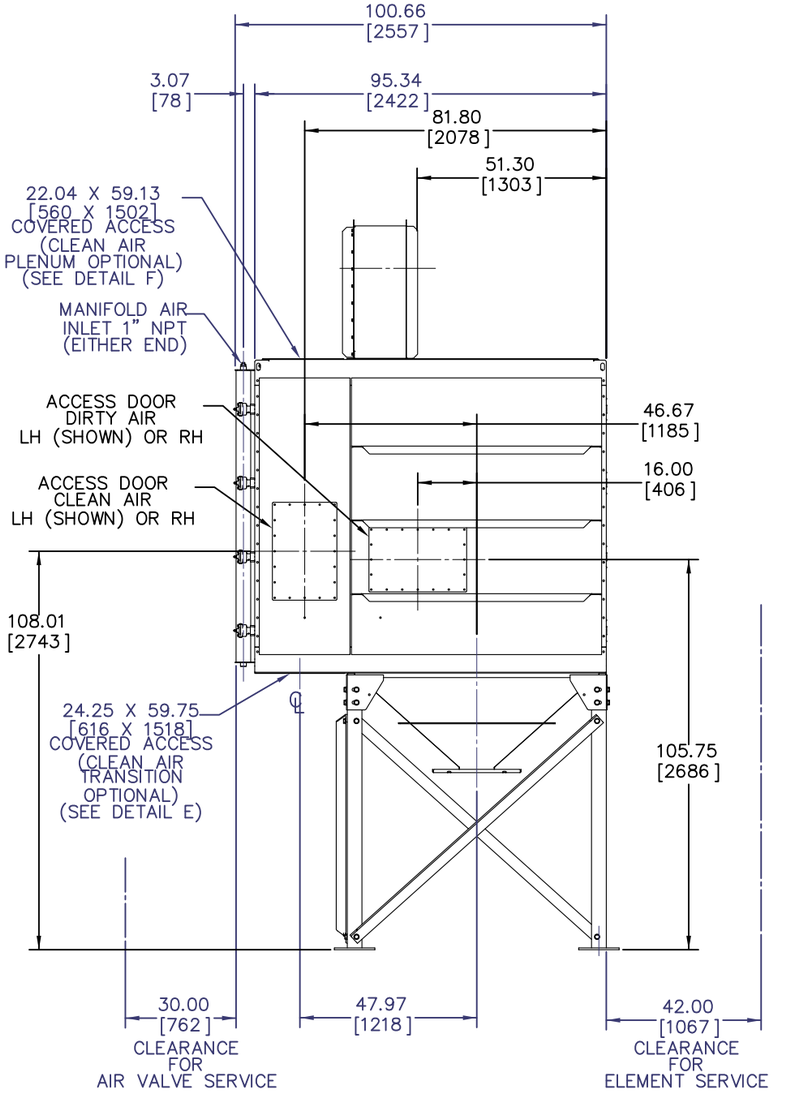
Appendix A - Plan Approval Application Forms
Appendix B - Emissions Inventory Tables
Appendix C - Control Cost Analysis
Appendix D - Compliance Review Form

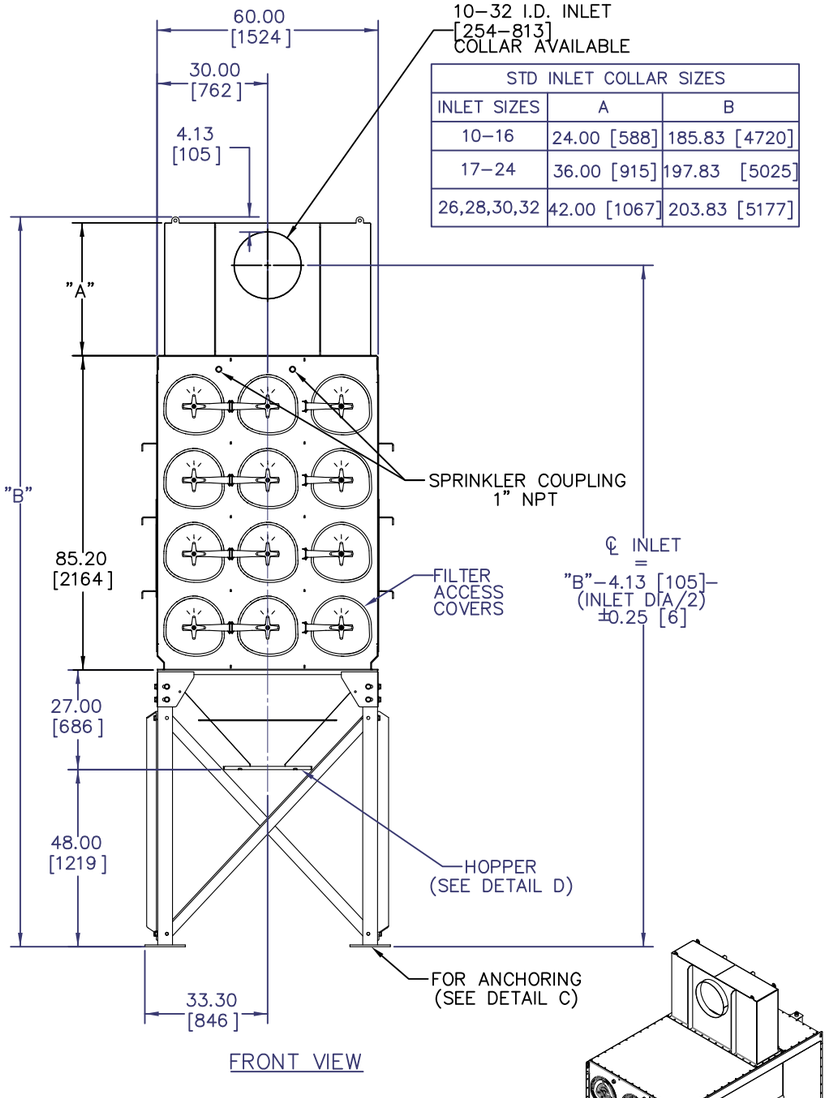
ATTACHMENTS TO APPENDIX A: VENDOR SPECIFICATIONS

ATTACHMENT 1: PAINT SHOP ABRASIVE BLASTING RECOVERY DUST COLLECTOR
ATTACHMENT 2: PAINT SHOP DUST COLLECTORS
ATTACHMENT 3: PAINT SHOP PAINTING FILTER

REVISIONS		
REV	DESCRIPTION	DWN/DATE
1	REVISED MULTIPLE NOTES, REVISED MULTIPLE DIMENSIONS 2014A02120	EAO 12/2/2014

Attachment 1

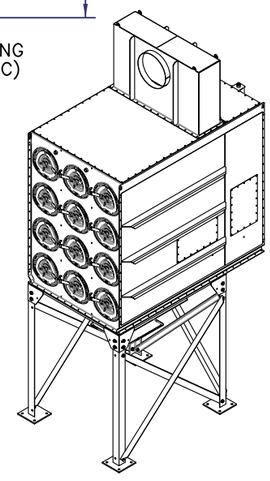




STD INLET COLLAR SIZES		
INLET SIZES	A	B
10-16	24.00 [588]	185.83 [4720]
17-24	36.00 [915]	197.83 [5025]
26,28,30,32	42.00 [1067]	203.83 [5177]

FRONT VIEW

300CMM / set



SPECIFICATIONS MODEL DFE 4-24

NO. OF FILTERS	24
FILTER DIMENSIONS	13.74 x 13.74 ASYM X 26.00 LG. [349 X 349 X 660 LG]
NO. OF VALVES	12
COMPRESSED AIR REQUIRED	12 scfm @ 90-100 psig [20 m^3/hr @ 6-7 bar]
HOUSING RATING	-25" wg [-635 mmwg]
P-RED	.40 BAR
OPERATING TEMP.	(FILTER ELEMENTS MAY VARY) 180° F [82° C] MAX
STANDARD FINISH	BLUE
APPROX. WT.	4090 lb [1855 kg]

IBC 2009 SPECIFICATIONS:

OCCUPANCY CATEGORY 2
BASIC WIND SPEED & EXPOSURE :90 MPH [145 km/hr] EXPOSURE C, 3 SEC GUST
SEISMIC SPECTRAL ACCELERATION, Ss=1.5 & S1=0.6, SITE CLASS D
GROUND SNOW LOAD, Pg: 40 PSF [195 Kg/m^2]
ROOF LIVE LOAD, Lr: 20 PSF [98 Kg/m^2]
COLLECTOR BASE AT GRADE

EXPLOSION VENT (OPTIONAL)

DONALDSON MEMBREX™
NOMINAL SIZE: 34 X 46 [864 x 1168]
RELIEF AREA: 8.52 FT^2 [0.79 m^2]
NOMINAL BURST PRESSURE: 1.45 psig [0.1 bar]

NOTES:

1 DO NOT INSTALL OR OPERATE THIS EQUIPMENT UNTIL HAVING READ AND UNDERSTOOD THE INSTRUCTIONS AND WARNINGS IN THE INSTALLATION AND OPERATION MANUAL. FOR A REPLACEMENT MANUAL CONTACT DONALDSON COMPANY, INC. (800) 365-1331.

2 NFPA 68-2013
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4 DIMENSIONS ARE IN INCHES AND [MILLIMETERS].

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REV.	DATE	REASON OF REVISION	DESIGN	CHECKED	APPROVED

TITLE	DFE 4-24 WITH HOPPER			SCALE	1/30 / A1
	DUST COLLECTOR 300CMM/SET			DATE	2016. 12. 21
	ASSEMBLY			PROJECTION	
				PROJECT.	
APPROVED	REVIEWED	CHECKED	DESIGN	DRAWN	DWG.NO. DFE-AG8190401
Y.J.CHOI		Y.K.KIM			

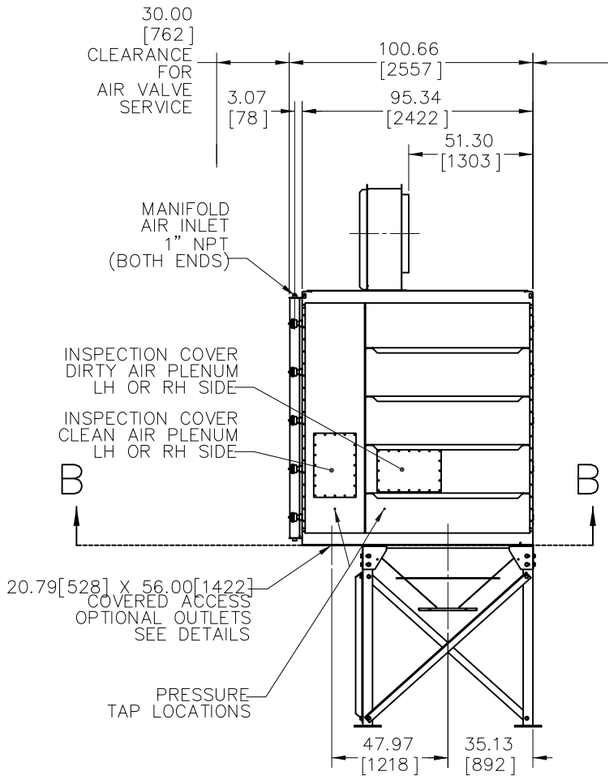
(株)美進産機 MIJIN INDUSTRIAL MACHINERY CO.,LTD.
주요 생산 품목
전처리 설비/ PAINT 설비/ 환경 설비
산업 기계/ 쇼트 일레라/ 부품 가공
SYSTEM ENGINEERING

TORIT® DOWNFLO® EVOLUTION

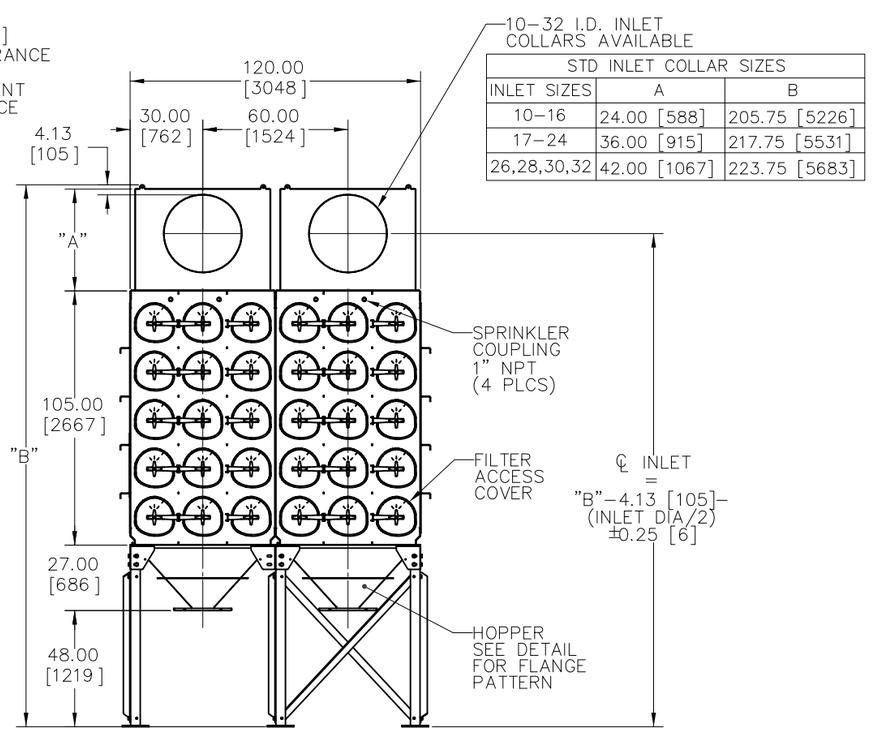
AG8190401.SLDDRW Monday, January 12, 2015 5:55:59 AM

REVISIONS		
REV	DESCRIPTION	DWN/DATE
2	REVISED MULTIPLE NOTES, ADDED CENTER LINE INLET DIMENSION 2014A02120	EAO 12/4/2014

Attachment 2



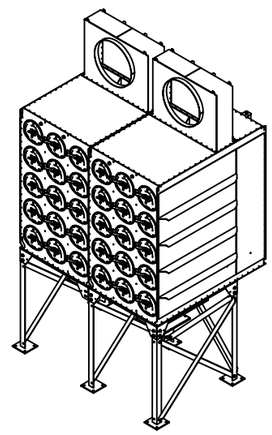
LEFT SIDE VIEW



STD INLET COLLAR SIZES		
INLET SIZES	A	B
10-16	24.00 [588]	205.75 [5226]
17-24	36.00 [915]	217.75 [5531]
26,28,30,32	42.00 [1067]	223.75 [5683]

FRONT VIEW

1200CMM/set



SPECIFICATIONS
MODEL DFE 5-60

NO. OF FILTERS	60
FILTER DIMENSIONS	13.74 x 13.74 ASYM X 26.00 LG. [349 X 349 X 660 LG]
NO. OF VALVES	30
COMPRESSED AIR REQUIRED	27 scfm @ 90-100 psig [46 m^3/hr @ 6-7 bar]
HOUSING RATING	-25" wg [-635 mmwg]
P-RED	.40 BAR
OPERATING TEMP.	(FILTER ELEMENTS MAY VARY) 180° F [82° C] MAX
STANDARD FINISH	BLUE
APPROX WT.	7700 lb [3493 kg]

IBC 2009 SPECIFICATIONS:

OCCUPANCY CATEGORY 2
BASIC WIND SPEED & EXPOSURE :90 MPH [145 km/hr] EXPOSURE C, 3 SEC GUST
SEISMIC SPECTRAL ACCELERATION, Ss=1.5 & S_1=0.6, SITE CLASS D
GROUND SNOW LOAD, Pg: 40 PSF [195 Kg/m^2]
ROOF LIVE LOAD, Lr: 20 PSF [98 Kg/m^2]
COLLECTOR BASE AT GRADE

EXPLOSION VENT (OPTIONAL)

DONALDSON MEMBREX™

NOMINAL SIZE: 34 X 46 [864 x 1168]
RELIEF AREA: 8.52 FT^2 [0.79 m^2]
NOMINAL BURST PRESSURE: 1.45 psig [0.1 bar]

NOTES:

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REV.	DATE	REASON OF REVISION	DESIGN	CHECKED	APPROVED

TITLE	DFE 5-60 STD WITH HOPPER AND LEGS			SCALE	A2
	DUST COLLECTOR 1200CMM			DATE	2017. 06. 10
	ASSEMBLY			PROJECTION	
				PROJECT.	
APPROVED	REVIEWED	CHECKED	DESIGN	DRAWN	DWG.NO. DFE-AG8235001
Y.J.CHOI		Y.K.KIM			

MIJIN PNEUMATIC INDUSTRIAL MACHINERY CO.,LTD.

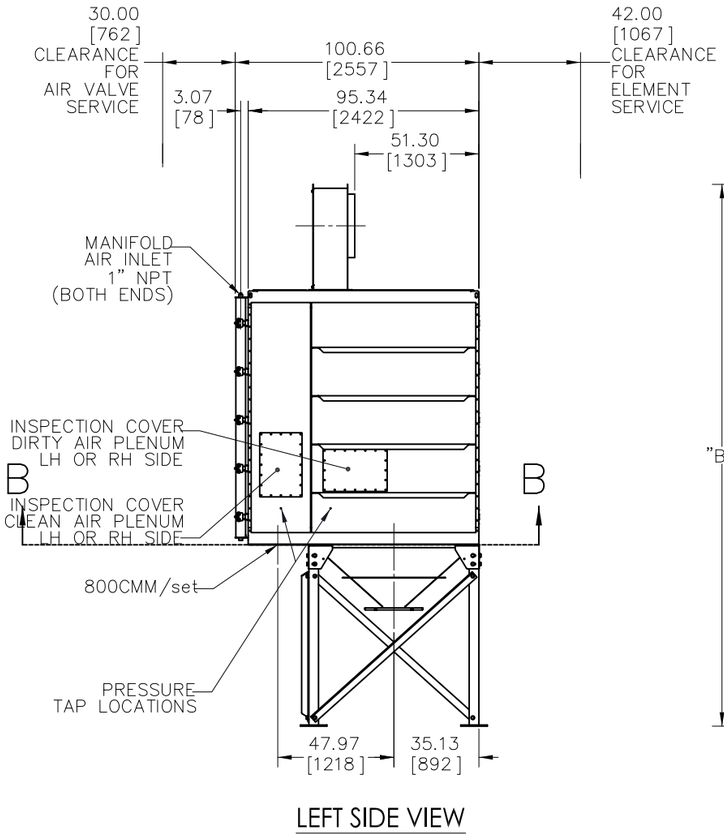
주요 생산 품목
에어 콤프레서 및 주변기기
BLAST & PAINT 설비/ 환경 설비
산업 기계/ 쇼트 임페라/ 쇼트설비부품
VACUUM RECOVERY / P.B.M

TORIT® DOWNFLO® EVOLUTION

AG8235001.SLDDRW Wednesday, January 14, 2015 10:05:25 AM

REVISIONS		
REV	DESCRIPTION	DWN/DATE
2	REVISED MULTIPLE NOTES, ADDED CENTER LINE INLET DIMENSION 2014A02120	EAO 12/4/2014

Attachment 2 Continued



LEFT SIDE VIEW

STD INLET COLLAR SIZES		
INLET SIZES	A	B
10-16	24.00 [588]	205.75 [5226]
17-24	36.00 [915]	217.75 [5531]
26,28,30,32	42.00 [1067]	223.75 [5683]

FRONT VIEW

SPECIFICATIONS
MODEL DFE 5-40

NO. OF FILTERS	40
FILTER DIMENSIONS	13.74 x 13.74 ASYM X 26.00 LG. [349 X 349 X 660 LG]
NO. OF VALVES	20
COMPRESSED AIR REQUIRED	18 scfm @ 90-100 psig [30 m³/hr @ 6-7 bar]
HOUSING RATING	-25" wg [-635 mmwg]
P-RED	.40 BAR
OPERATING TEMP.	(FILTER ELEMENTS MAY VARY) 180° F [82° C] MAX
STANDARD FINISH	BLUE
APPROX WT.	6200 lb [2812 kg]

IBC 2009 SPECIFICATIONS:

OCCUPANCY CATEGORY 2
BASIC WIND SPEED & EXPOSURE :90 MPH [145 km/hr] EXPOSURE C, 3 SEC GUST
SEISMIC SPECTRAL ACCELERATION, Ss=1.5 & S1=0.6, SITE CLASS D
GROUND SNOW LOAD, Pg: 40 PSF [195 Kg/m²]
ROOF LIVE LOAD, Lr: 20 PSF [98 Kg/m²]
COLLECTOR BASE AT GRADE

EXPLOSION VENT (OPTIONAL)

DONALDSON MEMBREX™
NOMINAL SIZE: 34 X 46 [864 x 1168]
RELIEF AREA: 8.52 FT² [0.79 m²]
NOMINAL BURST PRESSURE: 1.45 psig [0.1 bar]

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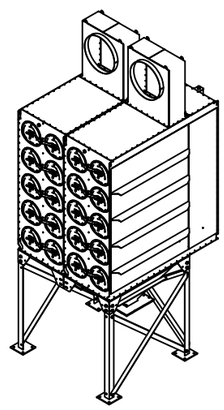

800CMM/set

REV.	DATE	REASON OF REVISION	DESIGN	CHECKED	APPROVED

TITLE	DFE 5-40 STD WITH HOPPER AND LEGS			SCALE	A2
	DUST COLLECTOR 800CMM ASSEMBLY			DATE	2017. 06. 10
				PROJECTION	
				PROJECT.	
APPROVED	REVIEWED	CHECKED	DESIGN	DRAWN	DWG.NO. DFE-AG8234701
Y.J.CHOI		Y.K.KIM			

MIJIN PNEUMATIC INDUSTRIAL MACHINERY CO.,LTD.

주요 생산 품목
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VACUUM RECOVERY / P.B.M

TORIT® DOWNFLO® EVOLUTION

AG8234701.SLDDRW Monday, January 12, 2015 2:36:06 PM

Attachment 3

STATE-OF-THE-ART TECHNOLOGY

The techniques we use to manufacture the media packs of our filter cartridges are unique and patented. **Camfil APC**® is the only company to offer HemiPleat® technology.

An Introduction to HemiPleat

HemiPleat technology is, in short, the unique, patented method we use to create highly efficient pleated filter media that outlasts and outperforms competitive pleated media.

We use synthetic beads to hold the pleats of the cartridge open. Opening the pleats exposes more media to the air stream and creates a longer-lasting, higher-efficiency filter cartridge. Our techniques are not found in competitive cartridges, which are packed too tightly to properly utilize their media. Our pleating technology is a step above older pleating methods.

HemiPleat media lowers a filter's pressure drop and facilitates a better release of dusts during pulse cleaning. Using less compressed air and lowering the energy demand of the fan motor will save you money.

Technical Specifications

- *Efficiency*
  Up to 99.995% on particles 0.5 µm or larger, by weight.
- *Maximum Operating Temperature*
  160°F (71°C)

Features and Benefits

- Available for any dust collector
- 100% media usage
- Extended filter life
- High cleaning efficiency
- Saves your time, energy, and money

HEMIPLEAT® SAVING YOU MONEY

Attachment 3 Continued

PROVEN PERFORMANCE

INDEPENDENT TESTS CONFIRM THAT HEMIPLEAT® TECHNOLOGY WILL MAKE DUST COLLECTION UNITS WORK MORE EFFECTIVELY.

Testing

Our filter cartridges made with HemiPleat technology have been independently tested multiple times in the lab. Those tests show that HemiPleat technology greatly enhances pulse-jet cleaning.

Filter cartridges with HemiPleat technology capture more air pollutants and releases more of those pollutants when pulsed, resulting in a safer, cleaner work environment with less maintenance.

HemiPleat technology provides the lowest initial pressure drop and the lowest pressure drop that lasts through the lifetime of the filter.

Case Studies

We have a great track record in the field. Ask your representative for case studies for your application.

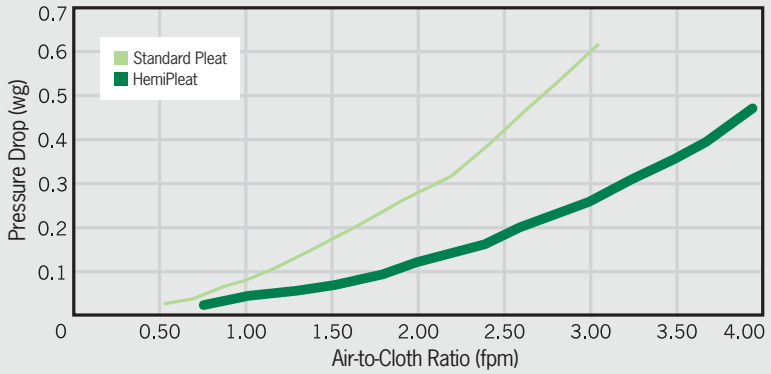
Test Results

For filters made with HemiPleat technology, tests showed that...

- HemiPleat filters have a lower pressure drop for a given airflow. (See top chart.)
- HemiPleat filters hold a larger volume of dust before needing to be cleaned, compared to filters without HemiPleat technology. (See bottom chart.)
- There is more usable media available for filtration in HemiPleat filters.
- Dust is ejected from deep within the HemiPleat filters during pulsing.

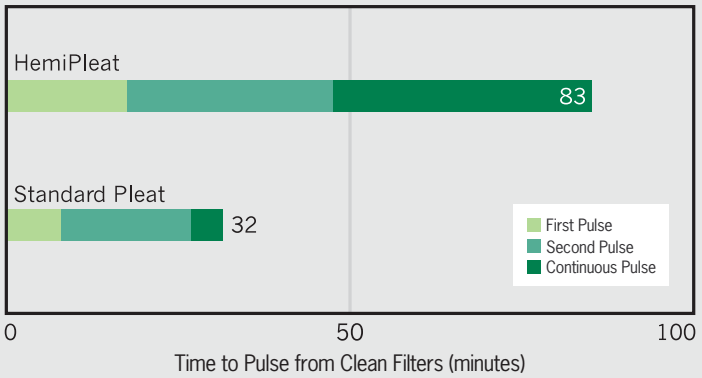
HEMIPLEAT® SAVING YOU MONEY

PRESSURE DROP V. AIR-TO-CLOTH RATIO



Less air resistance through the HemiPleat filters leads to a more efficient air flow through your dust collector.

PLEAT CONSTRUCTION V. PULSE TIMING



Units with HemiPleat filters installed will use less compressed air because they can hold more dust before needing to be cleaned.

USE LESS, SAVE MORE

camfil AIR POLLUTION CONTROL

APPENDIX B – EMISSIONS INVENTORY TABLES

Table B-1

Summary of Rolling 24-Month Emissions for PM/PM_{10}/$PM_{2.5}$ and VOC

(Main Shipyard and Building 763)

Philly Shipyard, Inc. - Philadelphia, PA

Rolling 24-Month Time Period [a]			Annualized Emissions Rate (tons)			
			PM [b]	PM_{10} [b]	$PM_{2.5}$ [b]	VOC
Mar-13	through	Feb-15	12.66	12.66	12.66	81.99
Apr-13	through	Mar-15	13.18	13.18	13.18	81.74
May-13	through	Apr-15	13.28	13.28	13.28	82.52
Jun-13	through	May-15	14.07	14.07	14.07	84.68
Jul-13	through	Jun-15	15.10	15.10	15.10	88.91
Aug-13	through	Jul-15	16.48	16.48	16.48	92.04
Sep-13	through	Aug-15	17.36	17.36	17.36	95.17
Oct-13	through	Sep-15	17.44	17.44	17.44	94.58
Nov-13	through	Oct-15	18.72	18.72	18.72	95.65
Dec-13	through	Nov-15	19.19	19.19	19.19	95.97
Jan-14	through	Dec-15	19.58	19.58	19.58	98.16
Feb-14	through	Jan-16	19.42	19.42	19.42	97.92
Mar-14	through	Feb-16	19.71	19.71	19.71	101.00
Apr-14	through	Mar-16	21.04	21.04	21.04	105.81
May-14	through	Apr-16	21.20	21.20	21.20	107.18
Jun-14	through	May-16	22.34	22.34	22.34	109.37
Jul-14	through	Jun-16	24.00	24.00	24.00	113.84
Aug-14	through	Jul-16	24.77	24.77	24.77	114.18
Sep-14	through	Aug-16	25.89	25.89	25.89	117.38
Oct-14	through	Sep-16	27.24	27.24	27.24	122.39
Nov-14	through	Oct-16	29.37	29.37	29.37	128.24
Baseline 24-Month Rolling Period			**Nov-14 Oct-16**	**Nov-14 Oct-16**	**Nov-14 Oct-16**	**Nov-14 Oct-16**
Annualized Baseline Emissions From Baseline 24-Month Period			**29.37**	**29.37**	**29.37**	**128.24**

[a] When determining the baseline period, PSI excluded those months when VOC emissions exceeded the Main Shipyard rolling 12-month permit limits (i.e., November 2016 to the present).

[b] Although an NNSR applicability analysis is only required for VOC, PSI also included emissions of PM/PM_{10}/$PM_{2.5}$ for informational purposes.

Table B-2

Projected VOC Emissions from Coating Operations at Main Shipyard [a]

Philly Shipyard, Inc. - Philadelphia, PA

Coating	Coating Usage per Ship		VOC		Total Projected Annual Coating Usage		VOC Content		VOC Emissions	
	gal	L	g	kg	gal/yr [b]	L	g/L	lb/gal	lb/yr	tons/yr
Coating 1	64,907	245,701	50,614,406	50,614	129,815	491,402	206.00	1.72	223,171	111.59
Coating 2	2,823	10,686	3,045,510	3,046	5,646	21,372	285.00	2.38	13,428	6.71
Coating 3	284.78	1,078	209,132	209.13	569.55	2,156	194.00	1.62	922.11	0.46
Coating 4	967.13	3,661	1,197,147	1,197	1,934	7,322	327.00	2.73	5,279	2.64
Coating 5	156.39	592.00	171,680	171.68	312.78	1,184	290.00	2.42	756.98	0.38
Coating 6	1,077	4,076	1,324,700	1,325	2,154	8,152	325.00	2.71	5,841	2.92
Coating 7	1,960	7,419	2,069,901	2,070	3,920	14,838	279.00	2.33	9,127	4.56
Coating 8	2,278	8,625	2,880,750	2,881	4,557	17,250	334.00	2.79	12,702	6.35
Coating 9	4.49	17.00	0.00	0.00	8.98	34.00	0.00	0.00	0.00	0.00
Coating 10	802.03	3,036	683,100	683.10	1,604	6,072	225.00	1.88	3,012	1.51
Coating 11	5,254	19,890	7,657,650	7,658	10,509	39,780	385.00	3.21	33,764	16.88
Thinners [c], [d], [e]	3,804	14,400	12,859,200	12,859	7,608	28,800	893.00	7.45	41,391	20.70
									Total (tons/yr):	**174.70**

[a] Coating at the Main Shipyard occurs at the Paint Shop and Dry Dock. Building 763 is separate from the Main Shipyard. Projected VOC emissions are based on PSI projections of materials and amounts to be used on site at the Main Shipyard. VOC contents were obtained from Safety Data Sheets and Technical Data Sheets for each coating.

[b] Projected coating usage based on an estimated production rate of up to two ships per year.

[c] PSI internally refers to the cleaning solvents used on site as "thinners." No thinner, however, is ever added to any coatings at PSI.

[d] PSI assumes that 70% of all purchased thinners will be recycled at the Facility with the remaining 30% of the purchased thinner sent off site as waste. The rate of recycling is based on recent PSI records on how much thinner is used in the Dry Dock areas where the thinner is sent off site as waste versus the Paint Shop and remaining areas where all thinners are recycled.

[e] PSI assumes that 100% of the VOCs in recycled thinners are emitted. For the portion of non-recycled thinner that is sent off as waste, PSI assumes that 10% of the VOCs in that thinner are emitted and the remaining 90% is sent off site as waste. The estimate of how much non-recycled thinner is emitted versus being sent off site as waste is based on PSI tests of how much thinner is recovered after a cleaning cycle is performed.

Table B-3

Projected $PM/PM_{10}/PM_{2.5}$ Emissions from Coating Operations at Main Shipyard [a]

Philly Shipyard, Inc. - Philadelphia, PA

Coating	Total Projected Annual Coating Usage [b]	Estimated Coating Usage for Dry Docks [c]	Estimated Coating Usage for Paint Halls [c]	Solids by Volume [d]	Specific Gravity [d]	$PM/PM_{10}/PM_{2.5}$ Emissions for Dry Docks [e]	$PM/PM_{10}/PM_{2.5}$ Emissions for Paint Halls [e]	Total $PM/PM_{10}/PM_{2.5}$ Emissions [e]
	(gal/yr)	(gal/yr)	(gal/yr)	(%)		(tons/yr)	(tons/yr)	(tons/yr)
Coating 1	129,815	35,459	94,356	0.78	1.284	22.22	5.91	28.13
Coating 2	5,646	1,542	4,104	0.73	1.43	1.01	0.27	1.27
Coating 3	569.55	155.57	413.98	0.80	1.706	0.13	0.04	0.17
Coating 4	1,934	528.34	1,406	0.68	1.4383	0.32	0.09	0.41
Coating 5	312.78	85.43	227.34	0.70	1.65	0.06	0.02	0.08
Coating 6	2,154	588.23	1,566	0.63	1.27	0.29	0.08	0.37
Coating 7	3,920	1,071	2,849	0.74	1.37	0.68	0.18	0.86
Coating 8	4,557	1,245	3,312	0.60	1.30	0.61	0.16	0.77
Coating 9	8.98	2.45	6.53	1.00	1.34	2.05E-03	5.45E-04	2.59E-03
Coating 10	1,604	438.14	1,166	0.76	1.56	0.32	0.09	0.41
Coating 11	10,509	2,871	7,638	0.62	2.17	2.42	0.64	3.06
Thinners [f]	7,608	2,078	5,530	0.00	0.00	0.00	0.00	0.00
					Total (tons/yr):	**28.07**	**7.47**	**35.54**

[a] Coating at the Main Shipyard occurs in the Paint Shop and the Dry Dock. Building 763 is separate from the Main Shipyard. Based on PSI projections of coatings to be used on site at the Main Shipyard. Although an NNSR applicability analysis is not required for $PM/PM_{10}/PM_{2.5}$, PSI is providing projected emissions for informational purposes.

[b] Projected coating usage based on an estimated production rate of up to two ships per year.

[c] Estimated coating usage is calculated using a historical percentage of coating throughput of the Dry Dock as compared with total coating throughput from the Paint Shop and Dry Dock.

[d] Solids content and specific gravity obtained from Safety Data Sheets and Technical Data Sheets for each coating.

[e] It is assumed that $PM = PM_{10} = PM_{2.5}$, where PM emissions assume the following:

Total throughput * % Solids by Volume * Specific Gravity * (Transfer Eff) * (Filter Control Eff) * (Particle Settling Eff) * 8.34 lb/gal * ton/2000 lb = PM TPY

Minimum transfer efficiency	70 %
Paint shop filter control efficiency	90 %
Particle settling efficiency	50 %

[f] PSI internally refers to the cleaning solvents used on site as "thinners." No thinner, however, is ever added to any coatings at PSI.

Table B-4
Projected VOC and PM/PM_{10}/$PM_{2.5}$ Emissions
from Building 763 Coating Operations [(a)]
Philly Shipyard, Inc. - Philadelphia, PA

Pollutant	Monthly Annualized Emissions	Projected Emissions [(b)]
	tons/yr	
PM	0.53	0.79
PM_{10}	0.53	0.79
$PM_{2.5}$	0.53	0.79
VOC	2.00	5.00

[(a)] Although an NNSR applicability analysis is not required for PM/PM10/PM2.5, PSI is providing projected emissions for informational purposes.

[(b)] Projected PM/$PM_{10/}PM_{2.5}$ are estimated by annualizing PSI's highest monthly emissions from the last five years (i.e., 0.04 tons in April 2013). The annualized emissions were then increased by 50%, which is based on the ratio of the production capacity of the new paint hall to the capacity of the existing paint halls. PAE for VOC are conservatively assumed to be equal to the existing permit limit.

Table B-5

Projected PM/PM_{10}/$PM_{2.5}$ Emissions from Blasting Operations [(a)]

(Main Shipyard and Building 763)

Philly Shipyard, Inc. - Philadelphia, PA

Pollutant	Monthly Annualized Emissions	Projected Emissions [(b)]
	tons/yr	
PM	0.07	0.11
PM_{10}	0.07	0.11
$PM_{2.5}$	0.07	0.11

[(a)] Although an NNSR applicability analysis is not required for PM/PM10/PM2.5, PSI is providing projected emissions for informational purposes.

[(b)] Projected PM/PM_{10}/$PM_{2.5}$ are estimated by annualizing PSI's highest monthly emissions from the last five years (i.e., 6.19E-03 tons in March 2017). The annualized emissions were then increased by 50%, which is based on the ratio of the production capacity of the new paint hall to the capacity of the existing paint halls.

Table B-6

Projected PM/PM_{10}/$PM_{2.5}$ Emissions from Welding Operations [a]

(Main Shipyard and Building 763)

Philly Shipyard, Inc. - Philadelphia, PA

Pollutant	Monthly Annualized Emissions	Projected Emissions [b]
	tons/yr	
PM	5.96	8.95
PM_{10}	5.96	8.95
$PM_{2.5}$	5.96	8.95

[a] Although an NNSR applicability analysis is not required for PM/PM10/PM2.5, PSI is providing projected emissions for informational purposes.

[b] Projected PM/PM_{10}/$PM_{2.5}$ are estimated by annualizing PSI's highest monthly emissions from the last five years (i.e., 0.50 tons in August 2013). The annualized emissions were then increased by 50%, which is based on the ratio of the production capacity of the new paint hall to the capacity of the existing paint halls.

Table B-7
Potential-to-Emit (PTE) from Third Paint Hall Heaters
Philly Shipyard, Inc. - Philadelphia, PA

Pollutant	Emissions Factor	Emissions Factor Units	Emission Factor Basis/Applicability Notes	PTE [(a)] tons/yr
PM	1.90	lb/MMscf	AP-42, Chapter 1, Table 1.4-2; filterable only	0.06
PM_{10}	7.60	lb/MMscf	AP-42, Chapter 1, Table 1.4-2; includes filterable and condensable	0.26
$PM_{2.5}$	7.60	lb/MMscf	AP-42, Chapter 1, Table 1.4-2; includes filterable and condensable	0.26
SO_2	0.60	lb/MMscf	AP-42, Chapter 1, Table 1.4-2	0.02
NO_X	94.00	lb/MMscf	AP-42, Chapter 1, Table 1.4-1	3.20
VOC	5.50	lb/MMscf	AP-42, Chapter 1, Table 1.4-2	0.19
CO	40.00	lb/MMscf	AP-42, Chapter 1, Table 1.4-1	1.36
Pb	5.00E-04	lb/MMscf	AP-42, Chapter 1, Table 1.4-2	1.70E-05

[(a)] Potential emissions are based upon the following:

2	heaters
3.97	MMBtu/hr, each
2,000	lb/ton
8,760	hrs/yr
1,020	MMBtu/MMscf

Table B-8

Summary of Baseline Actual Emissions (BAE) - VOC

(Main Shipyard and Building 763)

Philly Shipyard, Inc. - Philadelphia, PA

Emissions Unit	Emissions Rate (tons/yr)
	VOC
Paint Shop - Painting Operations	*82.98*
Dry Dock - Painting Operations	*45.10*
Painting Operations - Main Shipyard (Subtotal) [(a)]	128.09
Building 763 - Paint Booth [(a)]	0.15
Blasting Operations	0.00
Welding Operations	0.00
Total Baseline Emissions	**128.24**
Baseline Period	**Nov-14**
	Oct-16

[(a)] Coating at the Main Shipyard occurs in the Paint Shop and Dry Dock. Building 763 is separate from the Main Shipyard.

Table B-9
Summary of Could Have Accommodated (CHA) Emissions - VOC
(Main Shipyard and Building 763)
Philly Shipyard, Inc. - Philadelphia, PA

Emissions Unit	Emissions Rate (tons/yr)
	VOC
Paint Shop - Painting Operations	*118.19*
Dry Dock - Painting Operations	*104.93*
Painting Operations - Main Shipyard (Subtotal)	223.12
Blasting Operations	0.00
Welding Operations	0.00
Total CHA Emissions [(a)]	**223.12**
Permit Limit [(b)]	**154.00**
Building 763 - Paint Booth	2.00
Total CHA Emissions [(a)]	**2.00**
Permit Limit [(c)]	**5.00**

[(a)] CHA emissions represent the annual emissions that PSI was capable of emitting. CHA emissions were determined by annualizing PSI's highest emissions during the baseline period (i.e., 9.85 tons and 8.74 in October 2016 for Paint Shop - Painting Operations and Dry Dock - Painting Operations, respectively, while operating in compliance with applicable rolling 12-month emissions limits and 0.17 tons in October 2013 for Building 763 - Paint Booth, which are then multiplied by 12).

[(b)] This VOC limit applies to the Main Shipyard. CHA VOC emissions are higher than the VOC permit limit of 154 tons per year.

[(c)] Emissions from Building 763 are not included in the Main Shipyard's VOC permit limit of 154 tpy. Building 763 has a separate emissions limit of 5 tpy.

Table B-10
Summary of Projected Actual and Potential Emissions Rates
(Main Shipyard and Building 763) [a],[b]
Philly Shipyard, Inc. - Philadelphia, PA

Emissions Unit	Emissions Rate (tons/yr)							
	PM	PM_{10} [c]	$PM_{2.5}$	SO_2 [d]	NO_X [e]	VOC	CO [f]	Pb
Paint Shop - Painting Operations	*7.47*	*7.47*	*7.47*	*0.00*	*0.00*	*126.98*	*0.00*	*0.00*
Dry Dock - Painting Operations	*28.07*	*28.07*	*28.07*	*0.00*	*0.00*	*47.72*	*0.00*	*0.00*
Painting Operations - Main Shipyard (Subtotal)	35.54	35.54	35.54	0.00	0.00	174.70	0.00	0.00
Third Paint Hall Heaters	0.06	0.26	0.26	0.02	3.20	0.19	1.36	1.70E-05
Blasting Operations	0.11	0.11	0.11	0.00	0.00	0.00	0.00	0.00
Welding Operations	8.95	8.95	8.95	0.00	0.00	0.00	0.00	0.00
Total Projected Emissions from the Paint Halls and Dry Dock	**44.66**	**44.85**	**44.85**	**0.02**	**3.20**	**174.88**	**1.36**	**1.70E-05**
Building 763 - Paint Booth	0.79	0.79	0.79	0.00	0.00	5.00	0.00	0.00
Total Projected Emissions from Building 763	**0.79**	**0.79**	**0.79**	**0.00**	**0.00**	**5.00**	**0.00**	**0.00**

[a] All emissions are projected actual emissions (PAE) with the exception of the proposed third paint hall heaters, which are new sources so their emissions are based on potential-to-emit (PTE) using AP-42 emissions factors.

[b] PAE from coating operations based on estimated maximum annual coating usage and coating characteristic data. PAE from Building 763, blasting, and welding operations accounted for a potential increase in production due to added efficiency in the coating operations. Maximum actual monthly emissions during the baseline period were annualized and then increased by 50%, which is based on the ratio of the production capacity of the new paint hall to the capacity of the existing paint halls.

[c] PSI proposes to maintain the current Main Shipyard facility-wide PM_{10} limit of 89.0 tons on a 12-month rolling basis.

[d] As new sources, PTE for SO_2 is provided for the heaters.

[e] As new sources, PTE for NO_X is provided for the heaters.

[f] As new sources, PTE for CO is provided for the heaters.

Table B-11

Summary of Project VOC Emissions Increases and NNSR Applicability

(Main Shipyard and Building 763) [a]

Philly Shipyard, Inc. - Philadelphia, PA

Emissions Rate (tons/yr)	Painting Operations (Main Shipyard)	Building 763 - Paint Booth	Third Paint Hall Heaters	Total Project Emissions Increases
	VOC	VOC	VOC	VOC
PAE	*174.88*	*5.00*	*0.19*	--
BAE	*128.09*	*0.15*	*0.00*	--
Project Emissions Increases *(PAE - BAE)*	46.80	4.85	0.19	51.84
CHA [b]	*154.00*	*2.00*	*0.00*	--
Excludable Emissions *(CHA - BAE)*	25.91	1.85	0.00	27.76
Total Project Emissions Increases *(Project Emissions Increases - Excludable Emissions)*	**20.88**	**3.00**	**0.19**	**24.07**
			NNSR Significance Levels [c]	***25***
			NNSR Significant?	***No***

[a] NO_X emissions will remain below the current Main Shipyard facility-wide limit of 24.5 tons per rolling 12-month period, as established in the Plantwide Applicability Limit (PAL) from AMS Plan Approval Nos. 02049 and 02135 (1/6/2003).

[b] See Table B-9 for CHA calculations. Since CHA emissions were higher than the VOC permit limit, the CHA emissions were adjusted to the current Main Shipyard limit of 154.0 tons per year. Emissions from Building 763 are not included in the Main Shipyard's VOC permit limit of 154 tpy. Building 763 has a separate emissions limit of 5 tpy.

[c] Significance level listed in 25 Pa. Code §127.203.

Table B-12

NNSR Emissions Increases and Decreases for the Contemporaneous Period

(Main Shipyard and Building 763)

Philly Shipyard, Inc. - Philadelphia, PA

Project	Plan Approval Number	Issue Date	Actual Contemporaneous Emissions (tons/yr) [(a)]	
			VOC	
			Increases	Decreases
Dry Dock Modification Project	14218	1/26/2015	0.00	--
Third Paint Hall	Proposed	Pending Approval	24.07	--
		Total	**24.07**	**0.00**
Total Contemporaneous Period Emissions Increase			***24.07***	
NNSR Significance Levels			**25**	
Project Increases Exceed NNSR Significance Levels?			**No**	

[(a)] Contemporaneous period increase represents the total of Facility-wide (Main Shipyard and Building 763) emissions increases and decreases in VOC emissions from the preceding 10 years (including the current project) calculated in accordance with 25 Pa. Code §127.203a(a)(2).

Table B-13
Summary of Projected HAP Emissions from Main Shipyard
Philly Shipyard, Inc. - Philadelphia, PA

Emissions Unit	Emissions Rate (tons/yr)
	HAP
Paint Shops, Dry Dock [a]	120.33
Third Paint Hall Heaters [b]	0.06
Blasting Operations [c]	0.00
Welding Operations [d]	0.58
Total Emissions [e]	**120.98**

[a] Projected HAP emissions calculated using the projected VOC emissions and applying the expected average ratio of HAP to VOC coating contents.

[b] Projected HAP emissions based on potential HAP emissions since these are new sources. Potential HAP emissions calculated using AP-42 factors.

[c] No HAP emissions expected from the blasting operations.

[d] Projected HAP emissions are estimated by annualizing PSI's highest monthly emissions from recent months (i.e., 0.03 tons in August 2013). The annualized emissions were then increased by 50%, which is based on the ratio of the production capacity of the new paint hall to the capacity of the existing paint halls.

[e] PSI proposes to accept a new facility-wide HAP limit of 121 tons per year on a 12-month rolling basis.

Table B-14
Compliance With 25 Pa. Code §129.52 - Surface Coating Processes
Philly Shipyard, Inc. - Philadelphia, PA

Coating Name	Gram VOC per Liter Coating [(a)]	Percentage of Volume Solids[(a)]	Gram VOC per Liter Coating Solids	25 Pa. Code §129.52 Limit (Gram VOC per Liter Coating Solids) [(b)]	Compliant?
Coating 1	206	78%	264	800	YES
Coating 2	285	73%	390		YES
Coating 3	194	80%	243		YES
Coating 4	327	68%	481		YES
Coating 5	290	70%	414		YES
Coating 6	325	63%	516		YES
Coating 7	279	74%	377		YES
Coating 8	334	60%	557		YES
Coating 9	0	100%	0		YES
Coating 10	225	76%	296		YES
Coating 11	385	62%	621		YES

[(a)] Based on PSI projections of materials and amounts to be used on site. VOC content and solids by volume obtained from Safety Data Sheets and Technical Data Sheets for each coating.

[(b)] From 25 Pa. Code §129.52 Table I for miscellaneous metal parts and products, air-dried coatings.

Table B-15

Projected Coating Usage [a]

Philly Shipyard, Inc. - Philadelphia, PA

Coating Type	Annual Coating Usage
	gal/yr [b]
Coating 1	129,815
Coating 2	5,646
Coating 3	569.55
Coating 4	1,934
Coating 5	312.78
Coating 6	2,154
Coating 7	3,920
Coating 8	4,557
Coating 9	8.98
Coating 10	1,604
Coating 11	10,509
Total Coating Usage	**161,029**

[a] Coating at the Main Shipyard occurs at the Paint Shop and the Dry Dock. Building 763 is separate from the Main Shipyard. Projected VOC emissions are based on PSI projections of materials and amounts to be used on site at the Main Shipyard.

[b] Projected coating usage based on an estimated production rate of up to two ships per year.

APPENDIX C – CONTROL COST ANALYSIS

Table C-1
Regenerative Thermal Oxidizer - VOC Control for Proposed Third Paint Hall
Philly Shipyard, Inc. - Philadelphia, PA

CAPITAL COSTS					
	COST ITEM	FACTOR			COST ($)
Costs to Purchase Equipment					
(a)	Regenerative Thermal Oxidizer (RTO)	--	--	A	***$2,751,000***
(b)	Instrumentation	0.10	x A		***$275,100***
(b)	Freight	0.05	x A		***$137,550***
				B	***$3,163,650***
Direct Installation Costs					
(b)	Foundations and supports	0.08	x B		***$253,092***
(b)	Handling and erection	0.14	x B		***$442,911***
(b)	Electrical	0.04	x B		***$126,546***
(b)	Piping	0.02	x B		***$63,273***
(b)	Insulation for ductwork	0.01	x B		***$31,637***
(b)	Painting	0.01	x B		***$31,637***
					$949,095
	Total Direct Cost:				***$4,112,745***
Indirect Installation Costs					
(b)	Engineering	0.10	x B		***$316,365***
(b)	Construction and field expenses	0.05	x B		***$158,183***
(b)	Contractor fees	0.10	x B		***$316,365***
(b)	Start-up	0.02	x B		***$63,273***
(b)	Performance test	0.01	x B		***$31,637***
(b)	Contingencies	0.03	x B		***$94,910***
	Total Indirect Cost:				***$980,732***
	Total Capital Investment:			***TCI***	***$5,093,477***

ANNUALIZED COSTS						
	COST ITEM	COST FACTOR		UNIT COST		COST ($)
Annual Operating Costs - Direct Annual Costs						
(a)	Operating Labor/Maintenance	--	--	--	--	***$50,000***
Maintenance						
(a)	Maintenance Material	0.04	x A			***$110,040***
Utilities						
(a)(c)	Natural Gas	136,000	MMBtu/yr	$8.60	/Mcf	***$1,146,667***
(a)(c)	Operating Cost	550	Total HP	$0.07	/kWh	***$251,136***
	Total Direct Annual Costs:				***DAC***	***$1,557,842***
Annual Operating Costs - Indirect Annual Costs						
(b)	Overhead	60%	of sum of operating & maintenance costs			***$30,000***
(b)	Administrative Charges	2%	of TCI			***$101,870***
(b)	Property Taxes	1%	of TCI			***$50,935***
(b)	Insurance	1%	of TCI			***$50,935***
	Total Indirect Annual Costs:				***IDAC***	***$233,739***
	Total Annual Costs:				***TAC***	***$1,791,581***
Cost Effectiveness						
(b)	Expected lifetime of equipment, years	10				
(b)	Interest rate, %/yr	7.0%				
(b)	Capital recovery factor	0.142				
(b)	Total Capital Investment Cost	$5,093,477				
	Annualized Capital Investment Cost:					***$725,196***
	Total Annualized Cost:					***$2,516,778***
(d)	Pre-retrofit VOC	43.17	tons VOC/yr			
(e)	Post-retrofit VOC using RTO	0.86	tons VOC/yr			
	VOC Removed	42.31	tons VOC/yr			
	Annual Cost/Ton Removed:					***$59,485***

[a] Cost and control information obtained from Amec Foster Wheeler, 9/6/2016.
[b] Cost information estimated using the U.S. EPA Air Pollution Control Cost Manual (6th edition) published in January 2002 by the OAQPS (Section 3.2, Chapter 2, "Thermal and Catalytic Incinerators"). The manual is available at http://www.epa.gov/ttn/catc/dir1/c_allchs.pdf.
[c] Utility costs from the U.S. Energy Information Adminsitration (EIA) website for Pennsylvania.
[d] Potential VOC emissions calculated by taking the ratio of the painting capacity from the new paint hall to the total projected VOC emissions from painting operations.
[e] Post-control emissions are calculated assuming 98% efficiency, based on information provided by Amec Foster Wheeler. Post-control emissions also conservatively assume 100% capture of all VOC.

Table C-2
Regenerative Thermal Oxidizer - HAP Control for Proposed Third Paint Hall
Philly Shipyard, Inc. - Philadelphia, PA

CAPITAL COSTS				
	COST ITEM	FACTOR		COST ($)
Costs to Purchase Equipment				
(a)	Regenerative Thermal Oxidizer (RTO)	-- --	A	***$2,751,000***
(b)	Instrumentation	0.10 x A		***$275,100***
(b)	Freight	0.05 x A		***$137,550***
			B	***$3,163,650***
Direct Installation Costs				
(b)	Foundations and supports	0.08 x B		***$253,092***
(b)	Handling and erection	0.14 x B		***$442,911***
(b)	Electrical	0.04 x B		***$126,546***
(b)	Piping	0.02 x B		***$63,273***
(b)	Insulation for ductwork	0.01 x B		***$31,637***
(b)	Painting	0.01 x B		***$31,637***
				$949,095
	Total Direct Cost:			***$4,112,745***
Indirect Installation Costs				
(b)	Engineering	0.10 x B		***$316,365***
(b)	Construction and field expenses	0.05 x B		***$158,183***
(b)	Contractor fees	0.10 x B		***$316,365***
(b)	Start-up	0.02 x B		***$63,273***
(b)	Performance test	0.01 x B		***$31,637***
(b)	Contingencies	0.03 x B		***$94,910***
	Total Indirect Cost:			***$980,732***
	Total Capital Investment:		***TCI***	***$5,093,477***

ANNUALIZED COSTS						
	COST ITEM	COST FACTOR		UNIT COST		COST ($)
Annual Operating Costs - Direct Annual Costs						
(a)	Operating Labor/Maintenance	--	--	--	--	***$50,000***
Maintenance						
(a)	Maintenance Material	0.04 x A				***$110,040***
Utilities						
(a)(c)	Natural Gas	136,000	MMBtu/yr	$8.60	/Mcf	***$1,146,667***
(a)(c)	Operating Cost	550	Total HP	$0.07	/kWh	***$251,136***
	Total Direct Annual Costs:				***DAC***	***$1,557,842***
Annual Operating Costs - Indirect Annual Costs						
(b)	Overhead	60%	of sum of operating & maintenance costs			***$30,000***
(b)	Administrative Charges	2%	of TCI			***$101,870***
(b)	Property Taxes	1%	of TCI			***$50,935***
(b)	Insurance	1%	of TCI			***$50,935***
	Total Indirect Annual Costs:				***IDAC***	***$233,739***
	Total Annual Costs:				***TAC***	***$1,791,581***
Cost Effectiveness						
(b)	Expected lifetime of equipment, years	10				
(b)	Interest rate, %/yr	7.0%				
(b)	Capital recovery factor	0.142				
(b)	Total Capital Investment Cost	$5,093,477				
	Annualized Capital Investment Cost:					***$725,196***
	Total Annualized Cost:					***$2,516,778***
(d)	Pre-retrofit HAP	29.36	tons HAP/yr			
(e)	Post-retrofit HAP using RTO	0.59				
	HAP Removed	28.77	tons HAP/yr			
	Annual Cost/Ton Removed:					***$87,478***

[a] Cost and control information obtained from Amec Foster Wheeler, 9/6/2016.

[b] Cost information estimated using the U.S. EPA Air Pollution Control Cost Manual (6th edition) published in January 2002 by the OAQPS (Section 3.2, Chapter 2, "Thermal and Catalytic Incinerators"). The website for the manual is available at http://www.epa.gov/ttn/catc/dir1/c_allchs.pdf.

[c] Utility costs from the U.S. Energy Information Adminsitration (EIA) website for Pennsylvania.

[d] Potential HAP emissions calculated by taking the ratio of the painting capacity from the new paint hall to the total projected HAP emissions from painting operations.

[e] Post-control emissions are calculated assuming 98% efficiency, based on information provided by Amec Foster Wheeler. Post-control emissions also conservatively assume 100% capture of all HAP.

APPENDIX D – COMPLIANCE REVIEW FORM

CITY OF PHILADELPHIA
DEPARTMENT OF PUBLIC HEALTH
PUBLIC HEALTH SERVICES
AIR MANAGEMENT SERVICES

Air Management Services
321 University Avenue
Philadelphia PA 19104-4543
Phone: (215) 685-7572
FAX: (215) 685-7593

AIR POLLUTION CONTROL ACT COMPLIANCE REVIEW FORM

Filing Date:	☐ New Filing ☑ Amended Filing of 02 / 06 / 2017	☐ New Operating Permit ☐ Periodic
Application No: Not Applicable	☑ New Plan Approval ☐ Renew Plan Approval	☐ Operating Permit ☐ Change Owner

Applicant: (non-corporations attach documentation of legal name) Philly Shipyard, Inc.	Address: 2100 Kitty Hawk Avenue, Philadelphia, PA 19112	Tax ID No.: 23-29446098
		Telephone No.: 215-875-2815

Form of Management:
☐ Individual ☐ Fictitious name ☐ Partnership ☑ Corporation ☐ Government ☐ Other: _____

If applicant is a corporation attach list of names, business addresses, states of incorporation, taxpayer IDs , and relationships to applicant.

Describe Business Activities:

Philly Shipyard, Inc. is a leading U.S. commercial shipyard construction company with a state-of-the-art shipbuilding facility producing oceangoing merchant vessels.

Does the applicant have any other related parties operating in the Commonwealth of Pennsylvania? ☐ Yes ☑ No

If Yes attach a list of :
- Name, Mailing Address, Telephone, and Relationship to the applicant of all related parties, and
- Name and Business Address of the plant manager and general partners of the applicant.

List all plan approvals or operating permits issued by the Department or an approved local air pollution control agency under the APCA to the applicant or related parties that are currently in effect or have been in effect at any time 5 years prior to the date on which this form is notarized. Attach additional sheets as necessary.

Air Contamination Source	Plan Approval/ Operating Permit Number	Location	Issuance Date	Expiration Date
Paint Shop Blasting Operations	No. 12086	Paint Shop	7/23/2012	1/21/2014
Facility Wide	V07-005	Facility Wide	2/13/2012	2/13/2017
Facility Wide and Bldg. 763	No. 14218	Facility Wide and Bldg. 763	1/26/2015	7/26/2016
Dust Collector CD-AB-13	No. 15261	Building 763	11/5/2015	11/5/2016

List all incidents of deviations of the APCA, regulations, terms and conditions of an operating permit or plan approval or order by applicant or any related party, using the following format grouped by source and location in reverse chronological order. This list must include items both currently known and unknown to the Department. Attach additional sheets as necessary. See the definition of "deviations" for further clarification.

Date	Location	Plan Approval/ Operating Permit #	Nature of Deviation	Incident Status: Litigation Existing/Continuing; or Corrected/Date
See Attachment				

CONTINUING OBLIGATION: Applicant is under a continuing obligation to update this form if any additional documented conduct occurs between the date of submission and Department action on the application

I, Robert Fitzpatrick, being duly sworn according to law, depose and state under penalty of law as provided in 18 Pa. C.S. §4944 and Section 9(b)(2) of the Air Pollution Control Act, 35 P.S. §4009(b)(2), that I am the representative of the Applicant/Permittee, identified above, authorized to make this affidavit. I further state that the information provided with this form, after reasonable inquiry, is true and complete to the best of my belief and that there are reasonable procedures in place to insure that documented conduct and deviations are identified and made part of the compliance review information contained in the Compliance Review Form.

(Signature)

Robert Fitzpatrick

(Print or Type Name)

Vice President Production

(Print or Type Title)

Sworn to and subscribed before me this 23 day of June, ~~19~~ 2017

Notary Public

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
Michael Giantomaso, Notary Public
City of Philadelphia, Philadelphia County
My Commission Expires May 24, 2019
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

Affix Corporate Seal and attach copy of Articles of Incorporation

(Regarding corporate seal and signatures, please refer to Item 4 in instructions.)

Air Pollution Control Act Compliance Review Form
Summary of Incidents of Deviations
Philly Shipyard, Inc. - Philadelphia, PA

Date	Location	Plan Approval/Operating Permit #	Nature of Deviation	Incident Status: Litigation Existing/Continuing; or Corrected Date
September 1st of Each Year	Facility	Title V Operating Permit V07-005 §B.16	Annual emission fee for calendar years 2012-2016 was underpaid due to recently discovered emissions tracking deviations.	Disclosed and under evaluation by AMS.
November, 2016 - On-going	Facility	Title V Operating Permit V07-005 §D.1.(a)(2)(vi); Plan Approval No. 14218, 5.f.	Exceedence of facility VOC emissions limit.	Disclosed and under evaluation by AMS.
February 2016 - On-going	Facility	Plan Approval No. 14218, 5.b.	Exceedence of facility HAP emissions limit.	Disclosed and under evaluation by AMS.
June 2012 - February 2017	Facility	Title V Operating Permit V07-005 §D.4.(a)(1) and §D.5.(a)(1); Plan Approval No. 14218, 25 and 31.	The facility monitored and maintained monthly verification that emissions did not exceed the applicable limits, but the records were inaccurate due to recently discovered emissions tracking deviations	All monthly records have been corrected and deviations from facility emissions limits have been identified and disclosed to AMS. Note: Plan Approval issued January 2015.
February 12, 2012 - December 31, 2016 (Intermittent)	Welding Operations	Title V Operating Permit V07-005 §D.2.(c)(1)	PSI has instructed operators to utilize dust collectors whenever sources are in operation. However, due to operator error, compliance with this condition cannot be verified as continuous.	Use of particulate controls when the source is in operation is required under company policy. PSI regularly instructs and reminds operators to utilize particulate controls whenever sources are in operation. Any deviations noted by supervisors are immediately corrected.
2000 - November 5, 2015	Blasting Operations	Title V Operating Permit V07-005 §D.4.(e)(3)	This equipment, installed in 2000, has never had a continuous monitor capable of measuring differential pressure on the Building 763 Abrasive Blasting Dust Collector. PSI received a NOV from AMS, dated June 15, 2015, for failure to operate such a device.	Corrected on November 6, 2015. Pursuant to an agreement between AMS and PSI, this permit condition was removed.
April 5, 2013 - May 28, 2013	Welding Operations/ Dry Dock	Title V Operating Permit V07-005 §D.4 and D.5	Failure to conduct and record daily inspections while the position of Director of HSE was vacant.	Settlement April 28, 2014.
July 1, 2012 - August 12, 2012	Dry Dock	Title V Operating Permit V07-005 §D.5.(d)(5)	Failure to keep required records while the position of Director of HSE was vacant.	Corrected on August 13, 2012.
September 1, 2012 - November 6, 2012	Facility Wide	Title V Operating Permit V07-005 §B.16.(b)	PSI failed to submit payment for the annual Title V emission fees for reporting year 2011 by September 1, 2012.	Corrected on November 7, 2012 through submission of the emission fee plus a 50% late payment penalty.